Dr MACKNESS
ON THE
CLIMATE
OF
HASTINGS
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To Mary Ann Shaddock

With the kind love

of the Author

Hastings 14 Feb 1850



HASTINGS

CONSIDERED AS

A RESORT FOR INVALIDS.

Aër nimirum purus et bonus, quo nihil ad vitam retinendam, et sanitatem conservandam, magis necessarium est, nec quicquam ad multos morbos sanandos utilius; scilicet sine quo medicamenta alioquin optima et efficacissima parum omnino valent, et morbi, natura leves et facile sanabiles, maligni prorsus et sæpe insanabiles fiunt.

Conspect. Theor. Medicinæ, Jacobi Gregorii.

HASTINGS

CONSIDERED AS

A RESORT FOR INVALIDS.

WITH TABLES, ILLUSTRATIVE OF

ITS TEMPERATURE, SALUBRITY, AND THE GENERAL CHARACTER OF THE CLIMATE, SHOWING ITS SUITABILITY IN PULMONARY AND OTHER DISEASES.

ALSO, DIRECTIONS FOR THE CHOICE OF A RESIDENCE, AND HINTS AS TO DIET, REGIMEN, BATHING, ETC.

Second Edition.

BY

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MEMBER OF THE COLLEGE OF PHYSICIANS,
CONSULTING PHYSICIAN TO THE HASTINGS DISPENSARY.

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TO

SIR JAMES CLARK, BART.,

ETC. ETC. ETC.,

WHOSE RESEARCHES INTO THE EFFECTS OF CLIMATE
HAVE SO MATERIALLY
ADVANCED THE INTERESTS OF SUFFERING HUMANITY;
AND TO WHOSE
VALUABLE MEDICAL COUNSELS
THE AUTHOR ESTEEMS HIMSELF, UNDER GOD,
CHIEFLY INDEBTED FOR THE EXTENSION
OF LIFE AND USEFULNESS,—

THIS VOLUME

IS, WITH SINCERE RESPECT,

INSCRIBED,

BY HIS OBLIGED AND FAITHFUL SERVANT,

JAMES MACKNESS.

WELLINGTON-SQUARE, HASTINGS,
DEC., 1849.

PREFACE.

In the former edition of this work, published in 1842, I endeavoured to show that the vital statistics of Hastings presented some peculiar features, especially as to general salubrity, immunity from certain epidemics, and the comparative infrequency of tubercular consumption amongst its native inhabitants. Continued inquiries and observations, and the further experience of seven years, have only served to confirm me in the opinions I then expressed.

Much fresh and, it is hoped, valuable matter, will

be found in this Edition: and I here take the opportunity of thanking those gentlemen who have kindly permitted me to examine their Meteorological Journals.

22, Wellington-square,
Jan. 1, 1850.

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HASTINGS

A RESORT FOR INVALIDS.

CHAPTER I.

GEOLOGICAL CHARACTER OF THE SOIL OF HASTINGS.

Climate—a Cause of Consumption—the Necessity of Change as a Remedy.—Hastings—Its Advantages in part derived from its Soil—Geological view of its Strata, its Composition and its Influence on the Temperature and Moisture of the Atmosphere.—Dryness of the Downs.—Surrounding Scenery.—Absence of Malaria—its Effects in Italy.—Rarity at Hastings of Diseases dependent on Malaria.

Sir James Clark, in his excellent treatise on Pulmonary Consumption, says, "A cold, damp, and variable climate not only gives the predisposition to this disease, but becomes its exciting cause, and determines in an especial manner its local manifestation in the lungs." While, therefore, invalids thus predisposed continue to reside in a climate which fosters their disease, but little relief must be expected

from any medical treatment, however judiciously employed. It becomes an imperative duty for physicians to advise such patients to resort to a more genial clime. Among the places deemed most eligible in our own country, few, perhaps, have been more deservedly celebrated than the town of Hastings, especially as a winter residence, for invalids suffering from, or predisposed to, affections of the chest.

As it owes its peculiar salubrity of climate, in some measure, to the geological character of the soil, it will not be amiss to give a general description of its formation.

The present site of the town of Hastings, with the country adjacent, forms a part of what Doctor Fitton has so properly named, "the Hastings sand and clay formation," (iron sand formation,) and which has been so well illustrated by that able geologist, Gideon Mantell, Esq., in the Geology of Sussex: "The vast preponderance of the land and fresh-water exuviæ over those of marine origin observable in these strata, warrants the conclusion that the Hastings beds were formed by a very different agent to that which effected the deposition of the Portland limestone below, and the sands and chalks above them. Whether the land were an

island or a continent may not be determined, but that it was diversified by hill and valley, and enjoyed a climate of higher temperature than any part of modern Europe, is more than probable."

"Several kinds of ferns appear to have constituted the immediate vegetable clothing of the soil,—the elegant Hymenopteris psilatoides, which probably never attained a greater height than three or four feet, and the beautiful Pecopteris reticulata, of still higher growth, being abundant everywhere. It is easy to conceive what would be the appearance of the valleys and plains covered by these plants, from that presented by modern tracts, where the common fern generally prevails. But the loftier vegetables were so entirely distinct from any that are now known to exist in European countries, that we seek in vain for anything at all analogous without the tropics. The forests of Clathariæ and Endogenitæ (the plants of which, like some of the arborescent ferns, probably attained a height of thirty or forty feet,) must have borne a much greater resemblance to those tropical regions than to any that now occur in temperate climates. That the soil was of a sandy nature on the hills and less elevated parts of the country, and argillaceous in the plains and marshes,

may be inferred from the vegetable remains, and from the nature of the substances in which they are inclosed. Sand and clay everywhere prevail in the Hastings strata; nor is it unworthy of remark, that the recent vegetables to which the fossil plants bear the greatest analogy, affect soils of this description. If we attempt to portray the animals of the ancient country, our description will possess more of the character of a romance than of a legitimate deduction from established facts. The gigantic Megalosaurus and yet more gigantic Iguanodon, to which the groves of palms and arborescent ferns would be mere beds of reeds, must have been of such prodigious magnitude, that the existing animal creation presents us with no fit objects of comparison. Imagine an animal of the lizard tribe, three or four times as large as the largest crocodile, having jaws, with teeth equal in size to the incisors of the rhinoceros, and crested with horns. Such a creature must have been the Iguanodon!"

We know not, indeed, when this state of things existed; we only see the remains of animals and vegetables, which, in the beauty of their figure, and the exquisite fabric of their organization, have received the impress of Infinite Wisdom; and in tracing them

we are like the traveller who wanders amidst the ruins of a city of ancient time, of which the pages of history are silent. As he carefully examines the remains of palaces and tombs, and meets with coins and medals, which tell him of mighty empires prostrate and forgotten, he doubts not their former existence, although all around him is ruin and desolation; nor have we greater cause to doubt the equally well-marked "Medals of Creation," for do they not plainly bear the impress of their Creator's hand? I presume not to inquire how many ages have elapsed since our globe has undergone these changes; this I leave to the master-minds now engaged in these researches. It is sufficient for my purpose that such changes have taken place, and that the result has been the formation of a soil highly conducive to the perfect health of man, and on which he may fix his habitation, with a reasonable hope of escaping many of those contagious and epidemic disorders, to which he is obnoxious on a less salubrious site.

The soil is composed of immense beds of sand, and sand-rock with calciferous grit and fuller's earth, slaty clay and shale with iron ore. All these are of such a character as must materially influence

the surrounding atmosphere. The abundant radiation of heat, from the light colour of the surface, and the thirsty nature of the soil absorbing all humidity, and at the same time allowing of but little evaporation, prevent those dense and cold land-fogs peculiar to all districts having a clayey subsoil, where great evaporation takes place from the surface. Hastings, indeed, like every other place situated on the coast, is occasionally enveloped in a sea-fog, which sometimes suddenly arises in the finest days of summer; yet these mists, however formed, do not deposit dew, and, although they immediately change the temperature of the air,—probably, in some measure, by acting as a non-conducting medium, and thus cutting off the sun's rays, —yet they do not possess the permanently chilling effects as do the moist fogs arising from other sources. None, indeed, but those who have resided where the character of the soil keeps the surface continually moist, and who have, at the same time, suffered from some of those maladies which originate from or are aggravated by a cold and humid atmosphere, can fully appreciate the advantage which Hastings derives from its geological formation alone.

Rarely is it necessary for the invalid, however

delicate, to be confined to the house for any length of time, even in the most stormy weather. On the slightest cessation of rain, the surface becomes immediately dry; and in the summer season, a few hours after a fall of rain, those who are most susceptible of cold may ramble over the neighbouring hills, and sit down with impunity upon the dry and spongy turf. Nor is there, perhaps, a more enchanting scene, or one more calculated to exhilarate the mind, and invigorate the frame enervated by disease, than that which presents itself from these lofty cliffs and undulating downs. Inland, as far as the eye can reach, a beautiful and highly-cultivated country exhibits its hills and dales, its fields and woods. Seaward, the boundless deep rolls beneath, where barks of every kind, from the little pleasure punt to the stately Indiaman, hold their devious course. What a field for imagination! How many joyous and sorrowful hearts pass in review! Some leaving the home of their childhood, and leaving it for ever; others, returning after long absence, are rejoicing in bright dreams of the future,—dreams too bright for sober reality to fulfil.

To the invalid, naturally listless as he is, it is of especial advantage that, while he enjoys these invigorating breezes, the mind should be cheerfully

impressed with surrounding objects; and the art of feeling interested in all that passes before the eye is one of no little importance in repelling disease. As the rambler rests himself, perhaps near the edge of some precipitous cliff, where

> "the murmuring surge
> That on the unnumber'd idle pebbles chafes
> Cannot be heard so high,"

he may watch the poor shrimp-boy plying his daily avocation, or the sturdy fisherman preparing for his arduous labours.

But to return from this digression. The dryness of the soil, and the absence of humidity in the atmosphere, are not the only advantages of this particular formation. It is well known that where a soil is very retentive, and particularly where the vegetation is luxuriant, the aqueous vapour, constantly arising, is loaded with the remains of dead animal and vegetable matter, highly injurious to health, and the exciting cause of many of the most fatal diseases to which the human body is liable. This malaria, as it is called, has depopulated some of the fairest portions of the habitable globe. In the classic land of Italy, for example, with its bright and beauteous sky, whole districts—rich in the production of all that might administer to the wants of

man, even to the very gates of the Eternal City itself—exhale a malaria so pestilential as generally to prove fatal to those who are exposed to it.

Hastings, on the contrary,—the soil admitting of so little evaporation, and the vegetation in the immediate vicinity not being too luxuriant,—is entirely free from all causes of malaria; and, in a future chapter, I shall be able to show that the inhabitants enjoy a large immunity from all such diseases as derive their origin from this cause. In reference to this locality, therefore, the quaint language of Lord Bacon may be strictly applied: "The goodness of the air is better known by experience than by signs; we hold that air to be best when the land is level and plain, and that lieth open on all sides, so that the soil be dry, and yet not barren or sandy, which puts forth wild thyme, and eyebright, and a kind of marjoram, and here and there stalks of calamint, which is not altogether void of wood, but conveniently set with some trees for shade, where the sweetbriar rose smelleth something musky and aromatically; if there be rivers we suppose them more hurtful than good, unless they be small, clear, and gravelly."

CHAPTER II.

METEOROLOGICAL TABLES—MINERAL WATERS.

General aspect of the Country round Hastings.—Sheltered Situation.—Differences of Temperature in different Parts—High-street and Wellington-square.—Thermometrical Table.—Table of the Quantities of Rain and Atmospheric Pressure.—Comparative Table of Temperature and Quantities of Rain.—Prevailing Winds.—Causes of Climate.—Purity of Sea Air.—Sources of Oxygen.—Experiments of Raubandi, Heimstadt, Dalton, and Ingenhouz.—Hastings Chalybeate Waters.

THE general aspect of the country around Hastings is undulatory; the hills rise to considerable heights, but their sides slope so gradually as to deprive them of any very bold or striking effect, and hence the landscape is rather pleasing than grand or picturesque. The distance which the eye can traverse is often very great, when the observer is placed on the summit of one of the hills; and the scene is varied and interesting, woodland being mingled with tracts of arable land,—and now a farmhouse with its barns and hop-kilns—now a village, with its little church, enlivens the scene. Should the day be bright,

with now and then a cloud intervening between sun and earth, the effect is much heightened by the shadows which flit across the declivities of the hills; still, the picture wants a more striking background to perfect its beauty.

The valleys usually run from north to south, and are numerous, owing to the wavy character of the surface. The country is drained by various small streams, the currents of which are slow, and hence arises one cause of the difficulty of obtaining good harbours on this part of the coast, the back water being insufficient to keep the channels clear of shingle. Near the shore may be observed extensive tracks of level land, in which many of the valleys terminate. These flats have, doubtless, at some time been covered by the sea, which has either receded from them, or they themselves have been raised above it by successive deposits of alluvial matter brought down from the higher grounds. A good example of one of these flats is furnished by Pett Level, about four miles from Hastings, on the eastern side, where the cliffs terminate.

Although the scenery surrounding Hastings cannot, as we have admitted, boast of that grandeur which pertains to a wild and craggy coast, we have

only to penetrate a little into the interior of the country, and we shall meet at every turn choice spots of picturesque beauty nestled among the hills and valleys; especially if, leaving the turnpike-road, we betake ourselves to the narrow lanes. Narrow, indeed, are the Sussex lanes, often cutting their way between high embankments skirted with wood or hop plantations.

In the immediate vicinity of Hastings, on the eastern side, there are four miles of precipitous cliff overhanging the sea, and broken at intervals by valleys, such as Ecclesbourne, Covehurst, &c. In one of these valleys stands the old town of Hastings.

It is to this sheltered situation that Hastings owes much of its merit in the scale of climate. It is bounded on the north and east by very high land, the hill of Fairlight, which is the highest point in the back-ground, being 541 feet in height. On the west, also, the town is screened by a line of hill rising to an elevation of from 200 to 300 feet; whilst to the south there lies the expanse of a fine bay, reaching from Dungeness on the east, to Beachy-head on the west.

The old part of the town of Hastings is surrounded on all sides, except towards the sea, by

elevated hills, which, in many places, rise very abruptly; this valley has not inaptly been compared to a bowl with one side broken out; and, had advantage been taken of this natural amphitheatre to arrange the houses in a succession of terraces, the town would have presented, instead of a confused mass of buildings, an appearance both elegant and commanding. This part of the town being completely sheltered on every side but the south, the temperature is neither so variable, nor does the thermometer sink so low during the night as in other parts of Hastings and St. Leonards which are more exposed. In order to ascertain this difference, two thermometers, having the same aspect,—the one in High-street, the other in Wellington-square, were observed twice a day during the months of December and January of 1841-42, and the following Table will exhibit their respective variations:—

TABLE I.

DECEMBER, 1841.					JANUARY, 1842.				
Date.	High Street.		Wellington Square.		Date.	High Street.		Wellington Square.	
	8 A.M.	10 P.M.	8 A.M.	10 P.M.		8 A.M.	10 P.M.	8 A.M.	10 P.M.
1	51	50	51	50	1	38	34	35	32
2	50	49	50	51	2	36	34	33	34
3	52	48	52	49	3	32	28	31	27
4	48	46	47	45	4	28	30	27	26
5	42	44	41	43	5	30	32	28	28
6	50	42	47	41	6	26	30	29	29
7	40	44	38	49	7	28	28	29	28
8	50	40	50	43	8	28	26	23	27
9	38	46	37	41	9	26	26	23	23
10	50	40	49	40	10	28	30	25	27
11	38	38	36	37	11	34	32	32	31
12	48	50	46	50	12	34	32	30	35
13	50	46	49	44	13	34	36	32	30
14	42	40	40	34	14	40	32	41	31
15	46	46	43	47	15	30	32	29	29
16	46	46	42	37	16	40	34	39	37
17	38	32	32	25	17	36	34	31	34
18	30	30	28	33	18	32	26	32	28
19	34	36	32	34	19	28	32	26	29
20	34	32	31	34	20	34	34	30	32
21	32	36	32	38	21	34	34	31	32
22	36	40	30	34	22	34	36	33	39
23	36	46	35	43	23	30	26	30	29
24	46	44	35	38	24	26	38	24	37
25	46	36	44	35	25	36	32	37	33
26	32	30	31	31	26	40	38	40	40
27	32	34	32	32	27	38	38	35	35
28	34	44	35	38	28	36	34	35	34
29	40	42	38	38	29	34	36	30	36
30	44	38	37	38	30	34	36	32	37
31	34	36	35	34	31	38	44	36	43
Total	1289	1271	1225	1236	Total	1022	1008	968	992
Mean daily Temperature.	41·58	41·	39·51	39·87	Mean daily Temperature.	32·64	32·51	31·22	32·

The temperature of the High-street will also represent most of those parts of the town which are immediately sheltered by the cliff, while that of Wellington-square will very nearly represent that of the southern range of buildings facing the sea, from the Priory to the west end of St. Leonards. I form this opinion from comparing two years' thermometrical observations taken at Verulam-place, which may be considered as a fair average of the whole.

Upon referring to the above Table it will be seen that the mean difference of temperature between Wellington-square and the High-street, at eight o'clock in the morning, is two degrees during the month of December, while at ten o'clock at night it is only rather more than one degree; in the month of January the mean difference still continues in the morning nearly $1\frac{1}{2}$ degrees in favour of the High-street, and half a degree in the evening. We can only account for the extraordinary difference of temperature in two parts at so short a distance from each other, from the air in the lower parts of the valley, in which the old part of the town is built, remaining nearly quiescent, being very little influenced by those winds which are usually prevalent

at this season of the year. The cold northern blast sweeping along the higher lands with which the town is surrounded, continues its onward course, and descends not into the sheltered valley. Another cause which doubtless contributes to this result, is the fact, well ascertained, that the artificial heat, which is generated in every densely-populated place, raises the temperature above that of the adjacent country. In most towns this artificial increase of temperature is maintained only during the day, but the quiescent state of the atmosphere in this sheltered situation, favours its continuance during the whole night, and consequently it is in the morning that we perceive the greatest variation, and that at an hour too early for the sun, at this season of the year, to have any influence, and also before the artificial heat which is produced during the day begins to manifest itself. A little elevation in the same valley is sufficient to produce a great difference in respect to the equality of the temperature.

The following Table exhibits the result of ten years' observations made by the register thermometer, commencing Jan. 1, 1839, and terminating Dec. 31, 1848.

Five years' observations were made by Robert

Ranking, Esq., in the High-street, the thermometer being placed about five feet from the ground in a northern aspect, and perfectly protected from radiation.

Three years were made by the late T. G. Lloyd, Esq., in the Croft, the thermometer being well placed, and the observations most carefully taken.

The last two years' observations were made by Mr. John Banks, at Rock House, on the West Hill, the thermometer being four feet from the ground, protected from rain and radiation.

The first column shows the mean temperature for the year for each season and each month. The second column the mean difference of temperature for the year, the season, and the months; and the third, the mean extreme range of temperature for the year, the season, and the month.

TABLE II.

OBSERVATIONS MADE BY THE REGISTER THERMOMETER FOR TEN YEARS.

Mean Temperature for each month, each season, and for the whole year, deduced from ten years' Thermometrical Observations.		Mean difference of Temperature between each season and each month.		Mean extreme range of temperature during each season and each month.	
Mean annual temperature	50·62	Difference of mean temperature of winter and summer	21·49	Mean annual range	60·
Mean temperature of—		Do. of the warmest and coldest months	23·92	Mean range of winter	23·2
Winter	39·13	Do. of successive months	4·	Do. spring	28·4
Spring	47·68	Do. of successive seasons—		Do. summer	29·1
Summer	60·61	Winter and spring	8·55	Do. autumn	27·7
Autumn	55·15	Spring and summer	12·93	Mean range for—	
Mean temperature of—		Summer and autumn	5·46	January	25·7
January	37·63	Autumn and winter	16·02	February	28·2
February	38·16	Do. of successive months—		March	27.4
March	41·89	Jan. and Feb.	·53	April	29·2
April	47·4	Feb. and March	3·73	May	28·7
May	53·76	March and April	3·53	June	28·3
June	61·55	April and May	6·36	July	29·7
July	61·08	May and June	7·79	August	29·5
August	59·22	June and July	·47	September	29·8
September	57·46	July and August	1·86	October	28·2
October	55·5	August and Sept.	1·76	November	25·1
November	53·51	Sept. and Oct.	1·96	December	25·4
December	41·6	October and Nov.	1·99		
		Nov. and Dec.	11·91		
		Dec. and Jan.	3·97		

The following Table exhibits the mean annual quantity of rain which fell at Hastings, the number of days, *i.e.*, twenty-four hours, on which it fell, for the year, for the season, and for each month, from nine years' observations made for the Hastings Literary Institution, by John Phillips, Esq.; also the mean height of the barometer for the year, for each season, and for each month.

TABLE III.

Showing the mean number of rainy days, the quantities of rain, and atmospheric pressure.

Mean number of days,* including nights on which any moisture fell; and the mean quantities of rain for the year, for each season, and for each month, deduced from nine years' observations made for the Hastings Literary and Scientific Institution.			Mean height of barometer for the year, for each season, and each month.	
	Number of days.	Quantities of rain in inches.		
The mean average for each year ...	155·43	31·91	The mean annual average.....	29·72
Winter.....	40·	7·49	Winter.....	29·64
Spring	30·	5·06	Spring	29·81
Summer	34·	6·27	Summer	29·82
Autumn	50·	12·16	Autumn	29·64
January	14·44	2·91	January	29·62
February	11·66	2·2	February	29·69
March	11·66	2·99	March	29·89
April	7·33	1·20	April	29·75
May	11·02	1·87	May	29·80
June.....	9·77	1·52	June.....	29·91
July	13·	2·39	July	29·71
August.....	12·1	2·36	August.....	29·84
September	13·33	3·3	September	29·69
October	16·8	4·41	October	29·52
November	20·10	4·45	November	29·71
December	14·22	2·38	December.....	29·62

* The smallest quantity of rain which falls on any day or night is calculated.

THE following Tables, exhibiting a comparative view of the mean temperature for the year and for each season of the various climates of Britain which are resorted to by invalids, and the comparative number of rainy days, with the quantities of rain, calculated by inches, which falls at the same places :—

TABLE IV.

Showing the comparative Mean Temperature of different places, taken by the Register Thermometer, the quantity of Rain which falls, and the number of Rainy Days for each Year and Season.

PLACES.	TEMPERATURE.					RAIN.									
						Average Mean Quantities of Rain in Inches and Parts of Inches.					Average Number of Rainy Days.				
	Mean Annual Temperature.	Winter.	Spring.	Summer.	Autumn.	Annual Average.	Winter.	Spring.	Summer.	Autumn.	Annual Average.	Winter.	Spring.	Summer.	Autumn.
London	50·29	39·12	48·76	62·32	51·35	24·80	5·85	4·80	6·67	7·73	178	48	43	44	43
Hastings ...	50·62	39·13	47·68	60·61	55·15	31·91	7·49	5.06	6·27	12·16	155	40	30	34	50
Torquay.....	52·12	44·05	50·08	61·26	53·11	28·20	6·82	5·61	6·38	9·37	132	35	30	32	35
Clifton	51·26	39·91	49·79	63·87	51·49	...	...	...	...	...	169	45	36	41	45
Undercliff ...	51·72	41·80	49·82	61·31	53·95	25·94	6·61	4·48	5·67	9·18	146	39	32	33	42
Exeter	51·23	41·40	49·51	62·08	51·94	31·90	9·10	6·50	7·10	9·20	162	42	36	41	41
Penzance ...	51·80	44·03	49·63	60·20	53·36	44·66	12·64	9·35	9·34	13·33	178	50	40	39	48

By referring to the foregoing Table it will appear, that there is not more than a difference of one or two degrees between the mean annual temperature of London and our most favoured resorts for invalids. But, as Sir James Clark justly observes in his work on Climate, there is a considerable difference in fact, arising from the mode of distribution. He says, "It is because the higher degree of the temperature of London, and the interior of the island in summer, compensates for the lower degree in the winter, that the climate of these places appears to equal that of the south coast. The mean temperature of the latter, however, during the winter months, is from one to two degrees above that of London. The superiority is greatest in those months in the following order: January, February, December. It diminishes in March, and in April and May the temperature of the coast is nearly the same as that of London and its vicinity. In June, July, and August, the temperature of the coast is about one degree less than that of the interior; in September and October, the mean temperature of the coast and of the interior is nearly equal; but, in November, that of the coast begins to rise above the other. It is important to remark, that the difference of temperature in favour of the coast during winter occurs

principally between the *lower* extremes, so that the temperature of the day is nearly the same at both places, whilst that of the night is considerably warmer on the coast."*

It must be considered that, although the temperature of the interior of the country and that of the south coast during the day-time may be the same, in the case of Hastings, the shelter afforded by the cliffs, and the radiation of the sun's heat from them, produce a great difference in the actual sensations. It is well known that the presence or absence of wind has a very important influence in regulating the effects of cold. Sir James Ross says, that in the Arctic Circle, when the air is perfectly calm, even with the thermometer ten degrees below Zero, the cold does not appear intense; but if there be any wind, whatever part of the body may be exposed to it, becomes immediately frost-bitten unless kept constantly rubbed. During the prevalence of a north wind, however great the cold may be on the exposed heights, in that part of Hastings which lies below the protecting cliffs, its influence is scarcely felt, and this circumstance alone gives a great advantage to the invalid.

On referring to the Table it will be seen, that

* Page 122.

nearly seven inches more rain fall annually at Hastings than in London, and yet the average number of days on which rain falls is twenty-three less in the former place than in the latter. But although, therefore, each time it rains, a larger quantity of rain falls at Hastings than in London, Hastings is to appearance a drier place, in consequence of the porous nature of the soil, which, as before observed, quickly absorbs the moisture.

Table V. exhibits the prevailing winds and kinds of weather. The account from which the first column is deduced was kept for nautical purposes, and the observations may, therefore, be supposed, not to have been made with philosophical accuracy but they give such a view as would be taken by a common observer. The winds are designated by the nearest cardinal point from which they blew. The account from which the last column of the Table was drawn up was the result of more accurate observations, and it is to be regretted that they only embrace a period of two years.

TABLE V.

Showing the Prevailing Winds and Kinds of Weather.

Extracted from a NAUTICAL JOURNAL, kept at the CUSTOM HOUSE, for Five Years previous to 1842.

MONTHS AND SEASONS.	PREVAILING WINDS.				KIND OF WEATHER.		
	No. of days Northerly.	No. of days Easterly.	No. of days Southerly.	No. of days Westerly.	No. of days in which the weather is fine.	No. days on which rain, hail, snow, or sleet falls.	Foggy days.
January	9	6	6	10	14	17	2
February	4	9	11	5	15	13	2
March	6	10	7	8	21	10	1
April	7	9	8	6	21	9	2
May	7	8	8	8	21	10	1
June	3	5	8	14	19	11	1
July	2	4	7	18	18	13	1
August	3	5	9	14	21	10	1
September	3	6	8	13	17	13	1
October	8	5	7	10	18	13	1
November	5	5	13	7	13	17	1
December	9	4	11	7	17	14	2
Mean of Spring...	20	27	23	22	63	29	4
Mean of Summer	8	14	24	46	58	34	3
Mean of Autumn	16	16	28	30	48	43	3
Mean of Winter.	22	19	28	22	46	44	6
Annual Mean ...	66	76	103	120	215	150	16

The prevailing Winds for the Years 1847, 1848, from observations made twice a-day by Mr. J. BANKS, on the West Hill.

Months and Seasons.	No. of days North.	No. of days North-East.	No. of days North-West.	No. of days South.	No. of days South-East.	No. of days South-West.	No. of days East.	No. of days West.	No. days perfectly calm or variable.
January	6	7	1	3	2	6	5	...	1
February	9	1	1	...	...	11½	2	3	1
March	6	4	1	2½	2½	8	2	3	2
April	3	8	2	½	½	11	1	3	1
May	1	1	1½	2	1	12	10½	1	1
June	3½	2	½	½	½	15	3	3	2
July	2	6	½	...	1	16	3	1½	1
August	4	5	1	...	...	13	2	5	1
September	8	...	1	1	4	9	3	3	1
October	6	2½	2	1½	2	12	2	2	1
November	9	2	½	3	...	11	...	2½	2
December	5	5	...	3	2	13	1	1	1
Mean of Spring...	10	13	4½	5	4	31	13½	7	4
Mean of Summer	9½	13	2	½	1½	44	8	9½	4
Mean of Autumn	23	4½	3½	5½	6	32	5	7½	4
Mean of Winter	20	13	2	6	4	30½	8	4	3
Annual Mean ...	62½	43½	12	17	15½	137½	34½	28	15

The frequent prevalence of southerly and south-westerly winds during the winter and spring months not only materially tends to regulate the temperature, but brings with it a large supply of oxygen, that is, of vital air.

"The proper, constant, and inexhaustible sources of oxygen," says Liebig, "are the tropics and warm climates; where a sky, seldom clouded, permits the glowing rays of the sun to shine upon an immeasurably luxuriant vegetation. In our winter, when artificial warmth must replace deficient heat of the sun, carbonic acid is produced in superabundance, and is expended in the nourishment of tropical plants. The great stream of air, which is occasioned by the heating of the equatorial regions and by the revolution of the earth, carries with it, in its passage to the equator, the carbonic acid generated during our winters; and in its return to the polar regions brings with it the oxygen produced by the tropical vegetation."*

The wind on the coast is certainly far stronger than in inland places; but while, by the peculiarly sheltered situation of Hastings, invalids are protected from all except the southerly breeze, they

* Agricultural Chemistry, p. 19.

reap from these currents of air the important advantage which Dr. Kidd points out as arising from agitation of the atmosphere; (especially when aided by those alterations in its volume which follow upon every change of temperature,) namely, the removal or prevention, of the accumulation of local impurities.*

Doubtless the southerly winds derive some of their increase of warmth from passing over so large an extent of water, as the temperature of this latter element, during the winter months in these latitudes, is considerably above that of the atmosphere. The author of the "Curative Influence of the Southern Coast" attributes the mildness of the climate of Hastings, in part, to another cause; he says:—"The increased temperature of our southern and western coasts has also been thought to be influenced by the agency of the stream of warm water which flows towards Europe from the gulf of Mexico, occasioned by a material difference between the level of the gulf and that of the Atlantic Ocean. An accumulation of heat from this source was particularly observed quite across the Atlantic, as far

* "Adaptation of External Nature to the Physical Condition of Man," pp. 133 and 152.

as the European shores, by Dr. Franklin, in his passage from the United States to France, in November, 1776. He published a chart of this remarkable current, whose waters were found to be from six to eleven degrees warmer than the ocean through which they flowed, their superior temperature being derived from that of the climate of the Mexican gulf, whither the waters are pent up by the trade winds, which force them westerly, until they become actually more elevated by several yards than the waters of the Pacific Ocean. A similar extension of this stream has since been noticed by Major Rennell; but, although rather dependent on fortuitous circumstances than causes constantly operating with equal power (as has been shown by him and Captain Sabine), there is, nevertheless, I think, quite sufficient evidence for according with the idea of Professor Playfair, that "the elevations in temperature which are not unfrequently experienced by us during the prevalence of south-west winds, may partly arise from the presence of air heated by passing over these currents." *

It has been a question, how far the air over, or near the sea, is impregnated with any of its con-

* "Curative Influence of Southern Coast," p. 13.

stituents. That it is of greater purity all observers acknowledge.

Dr. Ingenhouz engaged in a series of experiments to prove the salubrious and beneficial effect of sea air in certain diseases, and concluded his paper with these words: "It appears, from these experiments, that the air at sea, and close to it, is in general purer, and fitter for animal life than the air on the land, though it seems to be subject to the same inconstancy in its degree of purity with that of the land, so that we may now, with more confidence, send our patients labouring under consumptive disorders to the sea, or at least to places situated close to the sea, which have no marshes in their neighbourhood." The more modern experiments on this subject are the following:—

M. Roubaudi observes, that M. Vogel, of Munich, is the only chemist, as far as he knows, who has made any experiments on the atmosphere of the ocean.

His experiments made on the Baltic prove,—

"1st, That the atmosphere of this sea contains less carbonic acid than that of the land, and that it is probable the carbonic acid diminishes proportionally to the distance from the continent.

"2d, That the atmosphere of the Baltic contains muriates in variable proportions."—*Journal de Pharmacie, Septième Année*, p. 461.

"M. Roubaudi made several experiments in order to determine whether the atmosphere of the coasts contained either free or combined muriatic acid, and whether either of them existed in the atmosphere at some distance from the coast. In order to determine the first question, he suspended, some feet in the air, and at a few paces distant from the sea, during calm weather, a large glass balloon, filled with a freezing mixture of snow and sulphuric acid. The atmospheric vapour which condensed on the outer side of the balloon produced a colourless, inodorous liquid, which suffered no change by keeping six months. Neither nitrate of silver, protonitrate of mercury, chloride of barium, or oxalate of ammonia, produced any change in it. It appeared perfectly similar to distilled water. Lime and Baryta water were the only re-agents with which this liquid became slightly clouded; and, after standing several hours, they occasioned a slight deposit soluble in nitric acid. The same apparatus placed at the same distance from the sea when it

was rough, condensed a liquid which produced, with the following re-agents, the annexed effects :—

" 1. With nitrate of silver. An opalescent tint, which, on standing some hours, formed a light precipitate, possessing the characters of chloride of sodium.

" 2. With nitrate of sub-oxide of mercury. White flocks, which precipitated to the bottom of the vessel.

" 3. With lime and baryta water. Turbidness, and eventually a precipitate, soluble in nitric acid.

" 4. With litmus paper. No change of tint.

" 5. Chloride of barium, ammonia, acetate of lead, and oxalate of ammonia, produced no appreciable effect.

" During a calm season, but when the sea was rough, the fluid obtained by means of the same balloon, at the distance of about fifty feet, gave no precipitates with the fore-mentioned re-agents; but, when the wind blew from the sea towards the balloon, the liquid gave more or less of precipitates with them.

" The same experiments were repeated on the sea during a calm period; the balloon was suspended

four feet from the surface, in a vessel at one hundred paces from the shores,—the condensed liquid, evaporated to one-third of its bulk, produced no effect upon the above-mentioned re-agents.

"M. Roubaudi then, with some variation in the mode of making the experiment, attempted to determine the extent to which the saline particles of the sea are carried from the shore; and, from various experiments, he concluded,—

"1st, That the air on the sea-shore, and over the sea, contains neither muriatic acid nor muriates.

"2d, That, when the sea is rough, and especially when the wind is violent, particles of sea water, in a state of great tenuity, float in the air, especially on the shore where the waves break; and that these particles are carried to greater or less distances according to the violence of the wind and the degree to which the sea is agitated.

"3d, That, without attempting to determine the distance with great precision, it may be admitted, that, at Nice, where the south wind is seldom violent, the saline particles are rarely carried more than one hundred paces inland."—*Journal de Pharmacie.*

"Heimbstädt found, in the month of April, on the shore of the Baltic, five feet above the level of

the sea, 21·5 measures per cent. of oxygen gas; at sixteen feet above, 20·5; while the air over the land contained 20; from which he concludes that sea water gives off oxygen gas."—*Gmelin's Chemistry, Translation,* vol. ii., p. 407.

"Dalton concludes, that the air in elevated regions contains rather less oxygen gas than that nearer the level of the sea."—*Phil. Mag.*, J. 12, 397.

That sea air is highly beneficial in certain diseases is universally acknowledged, and it has been recommended by physicians from the earliest times. In young children who are suffering from disease, and whose bodies are extremely sensible to every change, the benefit derived from being brought to the sea-side is very great, and often begins to manifest itself in less than forty-eight hours after their arrival on the coast. In several diseases of the chest sea air appears to be beneficial, and in consumptive cases especially. Even in the time of Celsus it was the practice for these patients to be sent to Alexandria,*

* Quod si mali plus est, et vera phthisis est, inter initia, protinus occurrere necessarium est: neque enim facile is morbus, cum inveteraverit, evincitur. Opus est, si vires patiuntur, longa navigatione, cœli mutatione sic ut densius quam id est, ex quo discedit æger petatur ideoque optissime Alexandriam ex Italia itur.—(A. Corn. Celsi, de Medicina, lib. iii. s. xxii.)

a city which is much exposed to winds from the sea, and where, according to the description of modern travellers, the air is so loaded with saline particles that the very walls become encrusted with saline matter, and the most highly-polished steel instruments soon become rusty. Dr. Sankey, when speaking of Malta as a residence for phthisical invalids, ascribes the suitability of the island for such patients to the fact, that "the island is open to every wind that blows."

It must, however, be borne in mind, that in every locality other influences are at work which bear sensibly on health and disease. Some such influences, not appreciable by experiments, probably exist at Hastings, as the following remarks would indicate:—"Were attention directed to the subject, I believe it would be found that different states of health, as expressed by countenance and complexion, are often to be met with in passing over districts of country, not to be accounted for by elevation or lowness, humidity or dryness, warmth or coldness of situation, a sedentary life, active occupation, or any appreciable state of air. In passing along the Sussex coast I was once sensible of a more healthy expression of countenance in the inhabitants as I

approached Hastings, than in those I was leaving behind towards Brighton. There was an obvious change of soil, and therefore, I doubt not, of water also." *

Hastings, therefore, possesses the various advantages of an absorbent soil, sheltered situation, an equable climate, and sea air.

Although Hastings has never been ranked amongst the places which are celebrated for mineral waters, there exist in the neighbourhood many springs strongly impregnated with iron, some of them more so than others, and in all, the iron exists in the form most suitable as a chalybeate,—that of the protoxide,—and is kept in solution by carbonic acid gas.

The most celebrated of the English chalybeates is Tonbridge Wells; it gained its reputation, indeed, at a time when chemical science was too imperfect fully to test the quantity of its ferruginous salts. Accurate analysis has since proved that there are many other places whose chalybeates contain a larger proportion of the oxide of iron; as, for instance, Thompson's Spa at Cheltenham. No. 6 Well, as analyzed by Messrs. Brande and Parkes, in 1817,

* Dr. N. Rumsey, on the Influence of Locality on Disease.—*Provincial Medical and Surgical Journal*, p. 185, 1844.

was found to contain 14·74 grains, or about 14¾ grains of the oxide of iron in the imperial gallon,* while that of Tonbridge Wells, according to Sir Charles Scudamore, only contains 2·748 grains, or about 2¾ grains of the oxide of iron.

The beauty of the scenery around Tonbridge Wells, and the salubrity of its air, will, however, suffice to keep up the supremacy of this delightful spa.

In a former edition of this book, I gave an analysis which I made of one of the strongest chalybeate springs which exist in the neighbourhood of Hastings, and which contained about a third more iron than that at Tonbridge Wells. But as this spring is in the pleasure-grounds of Hastings Lodge, and the chalybeate water, which arises from the bottom of a small well, is so mixed with the water of land-springs that it is difficult to obtain it pure, it is needless here to repeat the statement of its analysis, especially as a new well has been opened for the public use at St. Leonard's. The St. Leonard's chalybeate contains much less iron than many of the other springs, still, it is sufficiently impregnated to be of service in many diseases.

* Professor Thomson on Mineral Waters, Cyclopædia of Practical Medicine, vol. iv., p. 473.

The following is its analysis by Dr. Miller, Professor of Chemistry, King's College, London:—

Organic Matter	9·60
Fixed Salts in the Imperial Gall. 30·40 consisting of—	
Chloride of Sodium	5·25
Chloride of Potassium	1·64
Chloride of Magnesium	6·69
Carbonate of Magnesia	3·00
Sulphate of Lime	3·67
Carbonate of Lime	8·75
Protoxide of Iron	0·60
Silica	0·80
	30·40

Chalybeate waters have long been considered the best means of introducing steel into the system in that numerous class of diseases in which this remedy is so truly valuable; their effects are decidedly tonic, and a course of these waters generally renders all the functions of the body more active, particularly those of digestion, circulation, and absorption; hence they are indicated whenever there is great debility of the system, accompanied with a languid pulse and want of the natural secretions; they generally produce a feeling of warmth upon the surface of the body, and impart a sense of energy and activity to the patient which is at once percept-

ible to the feelings. Before commencing, and even during their use, it is absolutely necessary to keep the bowels in a healthy state of action, or they are apt to produce headache.* The usual dose for an adult is the contents of a tumbler containing half a wine pint, to be taken twice or thrice daily; the water should always be drunk from the spring when practicable; when otherwise, it ought to be put into bottles and kept well corked until used.

Amongst the numerous diseases in which chalybeates may be advantageously employed, I will only refer to two or three in which they are especially useful.

That form of indigestion called atonic dyspepsia, and which depends upon a loss of tone in the organs of nutrition, will be greatly benefited by a course of these waters. So likewise in that peculiar derangement of these organs which is the precursor of tuberculous consumption, much may be expected from its use; indeed, this remedy, if judiciously employed, is likely to be of essential service in these cases. An eminent writer says, "Chalybeates

* All chalybeates have a tendency to render the stools of those who take them black, and thus occasion alarm, unless the patient beforehand is warned of the circumstance.

have an excellent effect in some young persons of a tuberculous constitution; in those who have a languid circulation, a soft relaxed state of muscle, and a pale, bloodless appearance, they are superior, I believe, to every other remedy; but the indiscriminate exhibition of them is productive of much mischief. Before benefit can be derived from chalybeates, the digestive organs must be free from irritation; otherwise, however great may be the debility, they will generally do harm."* In hysteria, hypochondriasis, and that class of diseases dependent upon loss of tone of the nervous system; and in the general debility of convalescents, great benefit may be expected to be derived from a course of this water. Also in diseases of the uterine system, particularly those occurring in early life, and characterized by deficient or suppressed secretions, the most decided advantage may be anticipated from their use.

* Sir James Clark on Consumption and Scrofula.

CHAPTER III.

MEDICAL STATISTICS OF HASTINGS.

The salubrity of a climate best known from its medical statistics.—Twelve years' practice of the Hastings Dispensary, and four years' registration of deaths from all causes for the Borough of Hastings.—Comparative rarity of contagious disorders.—Typhus, Continued, and Intermittent fevers.—Diseases of Fishermen.—Rheumatism.—Climacteric disease.

In the former chapters the peculiar salubrity of Hastings has been inferred from the geological character of its strata, and from the many advantages arising from its sheltered situation and equable temperature. But, however specious such opinions may appear, and whatever care may have been exercised to avoid error, unless these opinions are borne out by experience, they must be rejected. In almost all researches in medical science, observation and experiment are the only certain guide. That able pathologist, Louis, of Paris, states, that nearly every previous theory which he had formed upon the statistics of disease, or the symptoms of disease,

he found, when put to this test, to be incorrect. Unless, therefore, the statistics of disease and death amongst the inhabitants of Hastings themselves, attest the superiority of its climate, every argument adduced in its favour can be of no avail.

In the year 1841 I furnished a report, which was published in the "Medical Gazette" of the 15th of April, and in the "Lancet" of the 7th of May, of twelve years' practice of the Hastings Dispensary, comprising nearly eight thousand cases of disease, which had received medical and surgical treatment at this institution since its first establishment. I had recourse also to calculations deduced from the registrar's book of deaths from all causes, which had occurred in the borough of Hastings during the four years the Registration Act had then been in operation. From these united sources I was able to form an opinion as to the statistics of disease and death, and the prevalence or unfrequency of various diseases; and to enable the reader to judge of the comparative salubrity of Hastings, I have here introduced a digest of that report.

Total number of cases of disease named in the Dispensary Books for twelve years—7711.

Total number of deaths registered in the Borough of Hastings from all causes, for four years—865.

	Dispensary patients for 12 years.	Deaths registered for four years under the Registration Act.
Epidemic and Contagious Diseases.		
Smallpox	102	21
Measles, scarlatina, influenza, diarrhœa, dysentery	674	94
Typhus fever	7	6
Continued fever	434	2
Intermittent fever	183	1
Hooping-cough, sore throat, erysipelas, &c.	310	63
Sporadic Diseases.		
Diseases of nervous system, such as convulsions, apoplexia, hysteria, &c.	276	159
Diseases of the external senses	247	
Diseases of organs of respiration—Cough	403	
Bronchitis	170	6
Asthma	53	12
Consumption	162	
Deaths from this cause amongst the inhabitants 91		161
Ditto, amongst strangers . . 70		
Other diseases of organs of respiration	240	64
Total number of deaths in four years from chest affections 254		
Diseases of organs of circulation	53	2
Diseases of organs of digestion	1512	78
Diseases of liver and spleen	80	4
—— kidneys, bladder, and neighbouring organs	440	11
—— organs of locomotion and integumentary system	1441	7
—— of uncertain seat	924	93
—— of old age and catarrhus senilis		81
	7711	865

From the foregoing Table it is evident, that Hastings is almost exempt from those maladies which are generally attributed to miasmatic influence, and that the diseases of the respiratory organs are much less frequent than in most other places in Britain, or even the south of Europe.* This is

* In the "British and Foreign Medical Review" for April, 1842, p. 434, the following comparison is made between Great Britain and the island of Malta:—"The population of Great Britain at Midsummer, 1838, must have been, according to the late census, about 15,196,225, of whom it is shown, by the Registrar-General's returns for that year, that 88,517 died of diseases of the lungs (excluding hydrothorax, which is not inserted under that head in the Maltese returns), being in the ratio of $5\frac{8}{10}$ per thousand annually, while the returns for Malta show, that on the average of the last twenty years, the mortality by the same description of diseases was $5\frac{1}{16}$ per thousand annually, a very close approximation, it must be admitted, the more especially as 1838 was a year in which the mortality from diseases of the lungs was much increased in this country, owing to the very general prevalence of influenza." Applying the same relative calculation to the Borough of Hastings with the census of 1841, which was taken at the time when the town was particularly free from strangers, the population was found to be 11,786; during the four previous years, the total number of deaths from affections of the chest was 254, which gives $5\frac{4}{10}$ for every 1000 of the population; at the same time it must be remembered, that a great number of those who die from these diseases are strangers, and come from a distance: if, indeed, we only deduct the seventy strangers who died from tubercular consumption, this would reduce the numbers to the proportion of $3\frac{9}{10}$ for every 1000, an average far less than that of the boasted island of Malta, to which the above reasoning will not apply, as it has only very lately become the resort of invalids.

particularly the case with consumption — that scourge of the human family, whose insidious and unrelenting march overtakes and destroys a large portion of all that is fair and beautiful, all that is intellectual and gifted, noble and aspiring, among our race, consigning them to the darksome grave, frequently at a period of life when their aspiring thoughts, their ardent hopes, had opened to them scenes of future glory and usefulness.

Only seven cases of typhus fever occurred in the practice of the Dispensary during the twelve years, and only six cases of death are registered as resulting from this cause for the whole of Hastings. Whether these six deaths were caused by idiopathic typhus, or whether the patients were suffering from some other diseases which had reduced their strength, and thus prepared the way for the supervention of typhoid symptoms, I am unable to learn. I should, however, think the latter supposition to be the more probable, considering the very few cases that have occurred in the Dispensary practice, more particularly as those who apply to this charity for relief are such as cannot afford to pay for medical advice, and therefore belong to the class of persons amongst whom typhus is most frequently prevalent. During

the year 1841, although 1,250 persons were admitted patients to this Institution, not a single case of this fever was amongst them. When the above numbers are contrasted with the prevalence of this disease in other places, the salubrity of the air of Hastings is strikingly exhibited. According to the report of the registrar-general, the proportion of deaths arising from typhus fever in the whole kingdom, is about one for every sixteen of those who die from other causes; the mortality at Hastings has been only twenty cases in twelve* years out of 2,767 deaths, or one for 138 from other causes; so that this fatal and dreadful malady has been about nine times less frequent at Hastings than the usual average in other parts of England. It will be seen by the table, that upwards of 400 cases of simple continued fever were under medical treatment at the Dispensary during twelve years. One of the most fertile sources in originating and propagating this disease is imperfect drainage. Formerly, an uncovered brook, called the "Bourne," acted as the common sewer of a great part of the

* I have carefully examined the registry of deaths from typhus and phthisis at Hastings up to the present time, 1849. The proportion of typhus is given above, that of phthisis will be seen hereafter.

town, and although care was taken to wash out this brook frequently, by means of a stream of water let on by a flood-gate from a reservoir reserved for the purpose, yet the emanations arising from partially decomposed animal and vegetable matter, in a densely populated neighbourhood, were anything but conducive to the health of the inhabitants. The "Bourne" was covered over in the year 1834, since which period this disease has gradually decreased, and almost entirely disappeared; in the year 1840 only thirteen cases, and during the year 1841 only three cases of this disease occurred in the Dispensary practice.

Upwards of 150 cases of ague had also been under treatment at the Dispensary during the period here noted, and although a number of these cases came from the neighbouring villages, several of which are situated near marshy districts, where ague is prevalent, yet many of them occurred amongst the inhabitants of the town; and doubtless the cause just alleged for continued fever may be regarded also as having been the principal source of this disease: this is proved by the corresponding gradual diminution in the number of cases. During the year 1841, even with a much greater number of patients,

only seven cases of ague were admitted. The experience of all medical men who have resided for some time at Hastings concurs in the opinion, that it enjoys a remarkable immunity from diseases of an epidemic character. During the ten years that I have resided in the place, with full opportunities of judging of the health of all classes of the inhabitants, this fact has repeatedly forced itself on my own observation. Yet the poverty of a very large part of the population of Hastings, their crowded dwellings and poor diet of fish, (upon which they principally subsist,) are circumstances which especially render its poorer inhabitants liable to such maladies; and fishermen, although a hardy race, are more liable to disease than many other classes of the community. From a statistical memoir upon the influence of various professions on the health and mortality of mechanics and artisans in the prime of life, founded on the tables of the Institution for sick mechanics at Wurtsburg, in Germany, from 1786 to 1831, a memoir drawn up by Dr. C. H. Fuchs, professor of medicine, and published at Berlin, in 1835, the sickness and mortality among fishermen and sailors were found greater than among those engaged in many other trades. This is supposed to arise from

the irregularities of their earnings, not affording them at all times a proper supply of wholesome food, as well as from their continued exposure to cold, wet, and other accidents. From these combined causes rheumatism is a disease to which seafaring men are particularly liable, but this is not only less frequent at Hastings, but milder in its character than in most other places of a similar description. Not a single case of death occurred from this cause for the first four years after the Registration Act came into operation.

The proportion of deaths registered for old age appears to be very favourable to the longevity of the population of Hastings;* and this need excite no surprise when it is considered that the greater part of elderly persons, or those whose circulation is languid, and whose powers of life are enfeebled by anxiety or disease, sink during the winter and spring

* At the neighbouring village of Bexhill, the population of which, in the census of 1831, amounted to little more than 1,800, the following singular dinner party assembled on the 4th of June, 1819, to celebrate the eighty-first anniversary of George III. The party consisted of forty-six. Twenty-five were, on an average, eighty-one years of age; fifteen who waited on them were seventy-one. Six who rung a merry peal on the church bells during dinner were sixty-one.

months from disorders of the mucous membranes, brought on by exposure to cold; and therefore the sheltered situation of Hastings, with its equable temperature, is peculiarly adapted as a residence for this class of invalids.

The observations of Sir James Clark upon this subject are very appropriate; he states that, "From about the age of fifty to that of sixty, though not unfrequently at a much earlier period, either when the system is naturally weak, or the causes of disease have been powerfully applied, the impaired condition of health now alluded to, usually supervenes.

"This disordered state of health has been termed the 'climacteric disease,' but it occasionally occurs long before the period of life at which this change of the constitution is stated to occur naturally.

"The causes which lead to this condition of the health are various: as, for instance, an anxious and sedentary life; long-continued and close mental application, or irregular and intemperate habits of living; and oftener still, it is the combined influence of several of these causes. From whatever cause it originates, a change for one or two years to a milder

climate will prove of the greatest benefit in restoring the invalid to his wonted health." *

A great part of the invalids who resort to Hastings for change of air are persons either suffering from some disease of the chest, or threatened with pulmonary consumption; and, as this last is a disease of more than common interest, I shall reserve its consideration for a separate chapter.

* Sir James Clark, on Consumption and Scrofula.

CHAPTER IV.

PULMONARY CONSUMPTION.

General knowledge of the Disease important to the Public.—Tuberculous Cachexia, Deposition of Tubercles.—Modes adopted by Nature for repairing the diseased Structure.—Pathology of Tubercles.—Their Distribution in the Lungs.—Curability of the Disease.—Mr. Abernethy's Opinion.—Climate as a curative Agent.

Pulmonary Consumption is a disease which, in all ages, has received much attention from the physician. The insidious nature of its attack, the early age of many of its victims, the frequent disappointment of the hopes of friends, the melancholy fact, that many of those who sink under this disorder in the bloom of life are among the most beautiful and talented of our species, invest it with a peculiar interest and importance. Its gradual approach, so often unnoticed, has been well described by one of its victims:—

"Oh, thou most fatal of Pandora's train,
Consumption, silent cheater of the eye;

Thou com'st not robed in agonizing pain,
Nor mark'st thy course with death's delusive dye,
But silent and unnoticed thou dost lie."*

It is of the utmost importance that not only the profession, but also the public at large, should have a correct knowledge of the character of this disease, so fatal and extensive, destroying, as it does, nearly a fourth part of the human race, and that all classes should be well acquainted with the causes which produce it; for in proportion as the preventive and curative treatment is founded upon correct pathological and physiological principles will it be more or less successful.

Of far greater importance than even the disease itself is that morbid condition of the body which favours the development of tubercles, since it is in this state of depravation of the general health, and in the earlier stages of consumptive disease, that the skill of the physician is most successful. This state of the body is termed, by Sir James Clark, tuberculous cachexia; by others it is designated as latent scrofula, the scrofulous diathesis, &c. With reference to this latter designation, it is true that, although some authors have laboured to prove that

* Henry Kirke White.

tubercle and scrofula are separate diseases, their identity is generally acknowledged by the profession.

Tuberculous deposit takes place usually in those persons who have an hereditary tendency to it; though, like other hereditary maladies, it may in its descent pass over two or three generations. By many authors it is also believed, that this depraved habit of the body may supervene where the constitution is naturally healthy, by its being continually exposed to those causes which depress the vital powers and deteriorate the health.

That state of the body which indicates the liability to consumption, is more easily detected by the appearance of the patient, than defined by words. It usually manifests itself in the earlier period of life, by certain peculiarities in the mental and physical development, and by a liability to certain forms of disease, long before the more open manifestation of the malady. One of the most ordinary affections which precedes the deposition of tubercle, is strumous dyspepsia, which will be hereafter described. But, from various causes, the general tone of health becomes depraved, and that state which precedes tuberculous deposition is induced.

This slight depravation of the general health is usually accompanied by a deficiency of the accustomed energy, frequently by a slight acceleration of the heart's action and quickening of the respiration, and a liability to be easily hurried, by a great susceptibility to changes of temperature, transient flushes of heat, alternating with pallor, a disposition in the finger ends and extremities of the body to become cold and livid; these slighter symptoms, after a time, are succeeded by a considerable quickening of the pulse, some loss or change of voice, a slight hacking cough, feverishness after slight exposure to cold, and a proneness to perspire in the morning. Gradually the symptoms increase, the pulse becomes more rapid, the breathlessness after exertion greater, the cough more dry and hacking, and the patient now begins slowly to lose flesh. If the physician is called in at this early stage, the stethoscope will reveal but little change in the structure of the lungs; insidiously, however, the disease advances, and changes more marked take place. The above description only applies to the more chronic forms of the disease, for the tuberculous matter may be deposited in a much more active form, yet even this is also preceded by the same depraved state of the general health.

It is not yet certain whether the tuberculous matter, when once deposited, can be again absorbed while in a crude state; some writers believe that it may: this has not, however, been satisfactorily proved. But the cure of tuberculous disease in the lung, whether the tubercle be in a crude or softened state, is more often produced by its being expelled and by the shrivelling up of the lung where it was deposited, or by the tuberculous matter itself being transformed into a calcareous mass. The process of cure is this:—the inflammation excited by the presence of the tuberculous matter is of a reparative character; gradually the inflammatory process ceases, the tuberculous matter, and the textures which surround it, shrivel up, and become invested with a thin membrane, formed by the blood-vessels. Absorption of the fluid contents of this membrane then takes place, leaving only a dry mass of broken-up tubercle and a puckering-up in the lung around it. This inert, dry, mealy mass is gradually converted into calcareous matter, which is often coughed up. On the other hand, when cavities in the lung take on the healing process, they do so very slowly; their contents are first expelled, either by contraction of the lung around them, or their sides becoming invested with a firm organized mem-

brane, instead of the soft, tuberculous, unorganized one which usually lines them, and becomes constantly renewed and destroyed. This firm, organized membrane increases gradually in thickness towards the centre, until the cavity is filled up. Sometimes the cavity continues open, but, losing altogether its tubercular character, becomes a sort of bronchial dilatation.

The matter of tubercle is secreted from the blood, and is of a pale yellow, or greyish colour. It is opaque and unorganized, it varies in its form according to the part in which it is deposited, and in its consistence and composition, as it is sooner or later examined. It is generally secreted in the mucous membranes of different organs, as the lungs, bowels, &c. There are differing opinions as to the immediate change which takes place during the formative process, by which tubercle is deposited. Some believe that tubercle is the primary cell from which all the tissues of the body are formed, in a state of degeneration; others, that tubercle consists of bodies of a peculiar cellular type; others, again, that the poison is in the blood itself, from which the tuberculous corpuscle is separated. As all the changes in the system which precede the deposit of tubercle

are of a character which indicate diminution of the vital energy, and, of course, of the formative process, there would seem a reasonable presumption in favour of that theory which views the tubercle as an imperfectly developed primary cell.

"With reference to the mode in which tubercles are distributed through the lungs, three distinct relations obtain:—first, they are found single, isolated, and more or less uniformly disseminated (*miliary tubercles*); secondly, they are found in scattered groups, assuming various forms; the tubercles being now loosely collected together, now closely connected, either in a regular mulberry shape or in clusters of indefinite form (*aggregate tubercles*); thirdly, and lastly, they are found so densely crowded throughout a portion, if not the whole, of a lobe, as to constitute seemingly but one coherent mass (*tuberculous infiltration*). Their mode of distribution is naturally influenced by their mode of development. Where they form rapidly they are the more equally dispersed; where slowly, they become in the same measure subject to the law which causes them to accumulate in the summit of the lung, and from thence downwards, gradually to decrease in compactness, with a proportionate tendency to run

into groups. The infiltrated form alone generally appears to set in all at once in an acute way, and with the character of hepatization. The aspect of the individual tubercles is also modified by the manner of their distribution; the grey variety in particular becoming whiter, and losing its transparency when densely congregated. For the most part, tubercles are limited to a single mode of distribution in the lungs of an individual; still, cases occur in which all the three forms before described are met with in the same lung, each form being, however, obviously due to a distinct period of deposition."*

When tubercle is deposited in a chronic form, it may remain perfectly unchanged for some time, although still increasing in quantity, until at length, either from the irritation which itself produces, or from some other cause, an inflammation is excited in the parts adjacent to a single tubercle, or, what is more common, the cellular tissue which surrounds a mass of tubercle may inflame; suppuration then takes place, and the tuberculous matter is softened and coughed up, leaving large or small cavities. These may again heal up, or they may go on increasing in

* Hasse's Pathological Anatomy, p. 326.

size; and, if the latter is the case, other cavities form in the same manner, and other organs partake of the disease. The irritation produces hectic fever, whilst the constant and harassing cough, the copious expectoration, the excessive night perspirations, and colliquative diarrhœa wear out the patient, until death terminates the scene.

But a more favourable result may take place: the tuberculous matter may become softened, be coughed up, and the cavity healed. Dissection of numerous cases, where death has resulted from other diseases, or from the same disease at a later period, has shown the healing of a cavity of this kind to be complete; a little puckering of the lung, and a little fibrous gristly or chalky substance, not larger, perhaps, than a pin's head, marks the place where a former cavity existed.

Mr. Abernethy, when addressing his pupils, used to say, in his own pithy and peculiar language, "Can consumption be cured? Bless me, that is a question which a man who had lived in a dissecting-room would laugh at. How many people do you examine who have lungs tubercular, which are otherwise sound? What is consumption?—it is (ulcerated) tubercle of the lungs; then, if those

tubercles were healed, and the lungs otherwise sound, the patient would get better."

There is, however, one subject which demands the most thoughtful consideration, and which, however well known to physicians, is either entirely overlooked, or not understood by the community at large. The subject to which I allude is the great error of considering consumption as affecting only the lungs, while, in truth, as has already been shown, it is a disease of the general system.

That able pathologist, Louis, announced it as a law, that, wherever tubercle was found in any other organ of the body, after the age of fifteen, that it was invariably accompanied by a deposit of tuberculous matter in the lungs of the same individual. The researches of other eminent pathological observers have, however, proved that this law is *not* invariable, even at a much later age; but the very fact of this law having for so long received the testimony of a man so eminent as Louis, as a law of universal application, is a proof how completely the lung disease is a part of the disease of the whole system.

The lung disease would indeed be sufficient, in a certain time, to destroy life, but this period is much

accelerated by disease of a similar character, which is running its course in other organs. The pulmonary affection is only a part of that great constitutional disorder, which shows itself more conspicuously in the lungs.

If we, therefore, always bear in mind that tubercular consumption is not exclusively a pulmonary disease, but little surprise need be excited that no specific remedy has hitherto been discovered for the cure of a malady, which, after it has made a certain progress, is altogether incurable.

Since the constitution is thus generally affected no local remedies can be useful, except as a means of allaying irritation, unless at the same time such remedies are accompanied with judicious treatment for the improvement of the general health; and the most that can be done in the advanced stage of the disease, is to smooth the passage to the grave; but, in its earlier stage, the combined testimony of all the professors of our art whose researches have been directed to the subject, happily affords evidence that much may be done, not only to prevent the deposition of tubercles in persons so predisposed, but to excite absorption of tuberculous matter where it has already been deposited.

What, then, are the means best calculated to produce so desirable a result as the restoration to health of an invalid affected with tubercular disease? Doubtless, amongst the foremost of these may be named, a removal to a mild and equable temperature, free from malarious influence: Sir James Clark observes,—"Even when tubercles already exist in the lungs, then climate affords one of our most valuable resources, and one which promotes the salutary action of all other remedies." *

But while it is almost essential for such invalids to seek a suitable climate, it ought always to be borne in mind that such a change is not all that is required. The most that climate can do for these patients is to place them in a more favourable position for daily exercise in the open air, and for the employment of other remedies; an early and judicious change, without doubt, produces a most beneficial influence; the course of the disease is often arrested, and the patient restored to permanent health. Dr. Renton, who practised for many years in the island of Madeira, observes, that of thirty-three cases of consumption, in an early stage of the disease, which were sent to that island, and

* Sir James Clark on Pulmonary Consumption.

came under his observation, twenty-four were apparently cured. Nor are such examples confined to the island of Madeira, for no medical man can long reside at Hastings without numerous cases coming under his own observation, where equal benefit is derived from the change.

Even where, from the advanced state of the malady, no permanent benefit is to be expected, it must not be forgotten that the disease is susceptible of great alleviation by a judicious transplantation. And what Dr. Martin has said * of the Undercliff may be said equally of Hastings:—"In some of the more unfavourable cases in which, with the fond clinging to existence which characterizes the disease, the sufferer craves for change with that longing desire which in one so situated hardly allows a denial, a removal from the cold situation of his own home to the milder climate of the Undercliff will sometimes tend to prolong life for a short time, and lessen the sufferings produced by his malady. Instead of being confined to the atmosphere of two heated rooms, where he rather exists than lives, the invalid will frequently be enabled to enjoy the invigorating influence of the open air; or,—and it

* Dr. Martin, on the Undercliff, Isle of Wight.

is a matter of no small importance,—he will find that he can bear the in-door temperature of this climate better than that of the one from which he has removed."

Although change of climate is so strongly recommended, still it must always be borne in mind that consumption finds its victims in every land, and among every people.

"In what degree such changes would seem to promote the development of phthisis may be gathered from the reports of the army surgeons of Great Britain (collected by Major Tulloch). These reports, founded upon the average of observations extending over a period of seven years, present the startling result, that out of an equal number of proportionately robust individuals, of the same age and sex, living upon nearly the same diet, subject to the same general regulations, and exposed to the same amount of fatigue, the mortality from tubercular phthisis is greatest in the West Indies, and least in Canada and Nova Scotia; and that at the Mediterranean stations the proportion is almost exactly the same as in Great Britain: being, at Gibraltar, as 1,000 to 8·2; to 6·7 at Malta; to 5·3 on the Ionian Islands; and to 6·6 in the United Kingdom. The

same report shows the mortality from phthisis amongst the Maltese inhabitants to be almost identical with what it is in Sweden; namely, at Malta, as 1,000 to $5\frac{1}{8}$; in Sweden, as 1,000 to $5\frac{3}{5}$. Further testimony might be added, showing the disposition to tubercular disease to be nearly equal in all climates, did not the above remarks already border too closely upon digression. The chief practical inference deducible from these statistics is, that, under auspicious circumstances, a judicious change of residence,—for example, from a volcanic to an alluvial soil, from a calcareous to a sandy district, and the like,—may prove serviceable in incipient phthisis; and again, that sea voyages are often productive of the best effects."*

The great object should be to select that climate where the disease is least apt to be excited in those predisposed to it; or such a climate as does not foster a predisposition in those who have it not hereditarily; or, lastly, such a climate as is most suitable for the recovery of those already affected with the malady. In the former chapters I have shown that Hastings possesses advantages of a high order as a residence of this kind, arising from the

* Dr. Hasse's Pathological Anatomy, p. 318.

salubrity of its soil and its sheltered situation. I shall now show that the above conclusions are borne out by the medical statistics of Hastings, and that the average mortality of its inhabitants from pulmonary consumption is below the usual average of most other places.

It is calculated that between a fifth and sixth part of the entire number of deaths in temperate climates arises from this cause. Dr. Shattuck, in the "Vital Statistics of Boston, U. S.," says, that sufficient facts are known to show that from one-fourth to one-seventh of all the deaths in the northern and middle states of America, and perhaps of the whole world, are caused by consumption.

The annual returns of the registrar-general show that about a fifth part of the mortality of England is caused by this disease.

Sir James Clark considers that a sixth of the deaths in Britain is decidedly caused by pulmonary consumption.

Dr. C. J. B. Williams, in a clinical lecture delivered to the medical students at University College Hospital, says,—"I am convinced, from extensive observation and much reflection on this subject, that tuberculous disease of the lungs, in some degree or

another, in one form or another, prevails among the more seriously sick in London and other large towns, in as great a proportion as among our own patients, 1 in 3·5. So far as our own *post-mortem* examinations have given the opportunity, you have seen verified the statement which I have made, that of those in large towns who die of various diseases above the age of thirty, more than half exhibit in the lungs more or less of tubercular disease, or the traces which it leaves behind."*

And in Italy itself, and the south of France, it is well known that the proportion of deaths from this cause is, if anything, greater than it is in England.

To ascertain with any degree of certainty the number of deaths which arise from this cause amongst the inhabitants of Hastings, it is absolutely necessary to inquire minutely into every individual case that may be registered, as having occurred within the limits of the borough. Unless this inquiry is carefully made, it is impossible to obtain a result at all approaching to truth, as from the great number of invalids of this description collected from all parts of the country,—many of them in the last stage of consumption,—it is only reasonable to

* Medical Gazette, 25th March, 1842.

expect that a large proportion of deaths from this disease will consist of those who have been brought from a distance, many of them at a time when their case was already hopeless, and who were literally sent hither to die.

But even with this large addition to the numbers, the average of deaths from this cause is very little greater than in other places; and when the inhabitants are carefully separated from strangers, a distinction which I have endeavoured to make, that average is, I believe, smaller than the average elsewhere.

During the twelve years in which the Registration Act has been in operation, the entire number of deaths entered in the registrar's books, as occurring at Hastings and St. Leonard's, under the heads, "Decline and Consumption," is 575 out of 2,767 deaths from all causes; this is rather more than a fifth of the mortality from all causes; rather higher than the usual average for the whole of England, as proved by the reports of the registrar-general. But of this number 267 were strangers, who came from a distance, and these being deducted from the 575, the balance left is 308 deaths from this cause among the inhabitants themselves, or rather less than one

for every eight from other causes,—certainly affording a very favourable view of Hastings taken with reference to this formidable malady.

The above numbers might be, perhaps, lessened in importance, as it is well known that nurses, and that class of persons who generally certify the death to the registrar, are in the habit of calling every disease in which there is great wasting of the body a decline; and therefore a great part of the above cases were probably not tubercular phthisis.

It may be alleged, that all registered reports are open to the same objection; but the following is another and greater source of fallacy, viz., that still more important class, who, having resided several years at Hastings, on account of impaired health, are considered as inhabitants, but who originally came from other places, with a constitution highly predisposed to tubercular disease. The climate may have had its effect in prolonging their lives, but *not* in completely restoring their health, and thus they also contribute to swell the list. So that, were all the cases not tuberculous distinguished from those truly tuberculous, and were all who have not been born at Hastings separated from the native population, I am inclined to believe that the average

would be considerably lower amongst the inhabitants of Hastings than in other places; and when we take into consideration the extreme poverty of many of the poor, their meagre diet, their wretched habitations, the close and unhealthy manner in which a great part of the town is built,—circumstances that all tend to encourage the development of tubercular disease, and which, doubtless, are the exciting causes of a great many of the cases that do occur, there can be little doubt that were the circumstances of this class of our population in a more flourishing state, so that they might be able to obtain more nourishing food, warmer clothing, more airy and comfortable dwellings, cases of tubercular consumption would rarely occur.

In order that the above facts may be more readily perceived, the following Table is given, exhibiting the relative mortality from pulmonary consumption in some of the cities of Europe and America, and also for several parts of England, for the year 1841, according to the Annual Report of the registrar-general, with the relative mortality from the same disease as occurring amongst the inhabitants of Hastings for twelve years:—

	Total number of deaths from all causes.	Deaths from Pulmonary Consumption.	Proportion of deaths from Consumption.
England and Wales for 1841	338,979	59,559	1 in 5·6
London for 2 years	91,565	14,562	... 6·2
Paris for 4 years	85,339	15,375	... 5·5
New York for 11 years.....	...	7,466	... 5
Boston for 7 years.....	...	1,481	... 5·9
Berlin for 10 years	73,216	12,800	... 5·7
Buckingham, and neighbouring dist.	968	239	... 4
Cambridge	547	131	... 4·1
Warwick.....	678	164	... 4·1
Exeter.....	646	141	... 4·5
Northampton.....	687	148	... 4·6
Worcester	717	144	... 5
Barnstaple, Devon.....	1,522	299	... 6·6
Hastings for 12 years	2,503	308	... 8·1

Having, in the preceding pages, given a description of tubercular consumption, pointed out the first threatening symptoms, and shown the comparative rarity of this disease at Hastings, I proceed to give such general directions as may suggest the best prophylactic means of preventing the disease. I would commence this subject by again impressing upon the reader the absolute necessity of not considering tubercular consumption as exclusively a pulmonary disease. It is from the prevalence of entire misconception on this point that a host of charlatans have been enabled to indulge their cupidity, and deceive their victims

with delusive hopes. Until this truth is well understood by the public generally, pretenders, however unprincipled and absurd, need little more than unblushing impudence to secure a golden harvest.

Attend to the general health, must be the first maxim in every successful plan of treatment in this disease. And, as the exciting causes of this dangerous malady have been shown to be various, so the prophylactic measures ought to have respect to the removal of these causes. Amongst them may be enumerated a cold, damp atmosphere, an improper or deficient diet, want of exercise, or excessive mental labour or anxiety, insufficient clothing, and close, ill-ventilated apartments; in short, whatever deranges the general health and occasions debility. These causes, especially if combined, may not only excite the disease in those hereditarily disposed to it, but even in those who are born perfectly healthy. The more effectual means of repelling this disease are, in the first place, a removal to a warmer and drier atmosphere. With this important advantage, let the patient have pure air, moderate but regular exercise, a nourishing but not a stimulating diet,—early hours, bathing, or sponging the body over with cold or warm water;

let the clothing be warm, and let him carefully avoid all severe bodily or mental toil, and all vicious and exhausting indulgences. Upon these various subjects I have treated more at large in the chapters upon diet, regimen, exercise, &c. When, however, such a formidable disease as consumption threatens, the sooner the patient applies for medical advice the better.

It has often been discussed whether consumption is a contagious disease, but the question may readily be answered in the negative. It is true that the kind and affectionate being who has sedulously watched the dying couch of a beloved sister or brother, soon after sickens, and gradually sinks from the same disease; but a ready solution offers itself here. She possessed, equally with her departed relative, a predisposition to the disease. But we often see an unnatural bloom upon the otherwise pale cheek of the tender and attached wife, who is anxiously devoting her unwearied services to her dying partner. After a time the cheek becomes paler, although the bloom still continues; the strength decays, and all around perceive that the same fatal disease is preying on her vitals. Is not this contagion? The only connexion between them

was one of affection, not of blood. The same reasoning will not do here as in the former case. But let us refer to what are enumerated among the exciting causes of this disease, and ask the questions,—Has there been no prolonged and painful watching? no disturbance of the natural rest? no confinement in the unwholesome air of a sick chamber? no mental anxiety? no loss of appetite, from the digestive process being interfered with? All these are causes sufficient to produce the disease, and to these may be added the fact, but too well ascertained, that there are comparatively few families entirely free from the hereditary taint.

CHAPTER V.

DISEASES FOR WHICH THE CLIMATE OF HASTINGS IS SUITABLE.

Necessity of proper Medical Advice to all Invalids seriously indisposed.—Indigestion.—Atonic Dyspepsia.—Inflammatory Dyspepsia.—Strumous Dyspepsia.—Consumption.—Chronic Bronchitis.—Asthma.—Neuralgia.—Rheumatism.—Gout.—Scrofula.—Diseases of Children.—Diseases of the Skin.—Concluding Remarks.

THE following brief sketch of some of the diseases, which are likely to be relieved by a residence at Hastings, is necessarily incomplete, both as to the minute description of their symptoms, and also as to the omission of many others which might have been with equal justice introduced; it will, however, serve as a guide to the general reader. It is not intended to lead patients to become their own medical advisers; on the contrary, I am convinced, that no individual, suffering from actual and serious disease can prescribe judiciously for himself. I consider proper medical advice to be absolutely necessary.

The united testimony and practice of all the professors of our art confirm this opinion. Is a physician ill, he trusts not himself, but consults one of his brethren; even the eminent and lamented Dr. Baillie, only a short time before the close of his life, and when the mortal character of his malady was evident, even to the non-professional persons around him, had such an imperfect judgment of his own case, as to deceive himself to the very last. The members of the legal profession have a quaint saying, "that he who is his own lawyer has a fool for his client," and too often does impaired health and incurable disease prove the truth of this maxim, when applied to those who act as their own physician, when suffering from grave diseases. As far as my own observation goes, after nearly thirty years' experience in my profession, I have scarcely met with a single individual who had treated himself judiciously.

Dyspepsia.—Perhaps no class of diseases of a chronic character is more common, produces more discomfort, or tends ultimately to more serious consequences than that which affects the organs of digestion and nutrition: few persons whose habits

are sedentary entirely escape from symptoms of indigestion; and year after year the malady continues to increase, until at length these organs either completely lose their tone, their functions are imperfectly performed, and hypochondriasis, with great emaciation, supervenes; or organic disease takes the place of healthy structure, rendering the complaint incurable, and leaving the sufferer no prospect but that of a lingering death. As dyspepsia arises from various causes, entirely dissimilar from each other, so a particular mode of treatment is required according to the peculiar character of the malady. It is unnecessary to enter minutely into the subject; I shall therefore only point out some of the most common forms, and those which are most likely to be relieved by a residence at Hastings.

Atonic Dyspepsia.—This term is applied to that condition of the digestive organs in which they appear to have lost their power or tone: the disease is characterized by loss of appetite, nausea, general debility, and a sense of chilliness; a languid pulse, pale countenance, coldness over the region of the stomach, accompanied with heartburn and eructation after eating; the bowels are constipated, the

urine abundant, but of a paler colour than natural: this kind of dyspepsia is often accompanied with hypochondriasis, and is best relieved by change of scene, sea air, and tepid bathing; a light and nutritious diet, with a course of such medicines as will improve the state of the digestive organs, and give tone and vigour to the system. Such invalids should be careful in selecting a suitable residence, which ought to be in some of those parts of the towns of Hastings and St. Leonard's which are comprised under the third and fourth divisions in the sixth chapter of this work.

Inflammatory Dyspepsia.—The functions of the stomach and upper part of the bowel may be imperfectly performed for a considerable time, until, at length, the mucous coat becomes the seat of subacute inflammation, which manifests itself by an inordinate craving for food, thirst, headache, a red and often dry tongue, beset with elevated red spots, particularly near the apex; there is pain over the region of the stomach and upper part of the bowels, a deficiency of most of the accustomed secretions; the mind also participates in the deranged state of the health, and is irritable and depressed, accom-

panied with lassitude and dislike to all exertion. All stimulants increase the symptoms. The best mode of treatment will be found to be that which is calculated to subdue inflammatory action, such as a light, nutritious, unstimulating diet; warm sea bathing, a course of alterative medicines, with regular but gentle exercise in the open air, particularly aquatic excursions, or riding in a carriage.

Strumous Dyspepsia.—The peculiar character of this affection was first pointed out by Dr. Todd, of Brighton, who thus named it from its connexion with the scrofulus diathesis, and as marking out that state of the system which occurs previous to the deposition of tuberculous matter in the various tissues of the body. The symptoms of this affection manifest themselves at a very early age, often during the first dentition; the patient is fretful, the appetite irregular, often voracious, the belly tumid, the bowels relaxed or confined, the evacuations unhealthy; there is great lassitude and apparent want of interest in the pursuits and amusements of the patient's age; the muscles are flaccid, the sleep restless, accompanied with moaning and grinding of the teeth; the tongue has generally a peculiar appearance, being

covered over with a thin white mucus, studded with red spots, particularly near the apex. As the patient becomes older the tonsils are apt to become inflamed, and there is a great tendency to sore throat from the slightest cold. Chilblains are also a frequent accompaniment of this affection, showing a great want of power in the cutaneous circulation. These symptoms, unless checked by appropriate treatment, continue to increase until the age of puberty, when, if tuberculous matter has not been already deposited in some of the tissues of the body, it often manifests itself in the organs of respiration, and tubercular consumption supervenes. But it is in this state of tuberculous cachexia—which is manifested by derangement of the digestive organs—that the physician is able, by judicious treatment, to exercise the greatest influence in preventing those ultimate changes which, sooner or later, destroy life. It is at this period of the disease that consumption may be said to be really curable; for, although this malady does not, as yet, actually exist, all that leads to it is present; and, however beauty or intellect may adorn the opening flower, the canker-worm is at its root, and the first wintry blast or sultry sun will assuredly blight its full maturity. The most important benefit

in this disease will be derived from a residence in a sheltered situation, on the sea-coast, with attention to diet and regimen, cold sea-bathing, proper medical treatment, and daily exercise in the open air.

I cannot leave the subject of dyspepsia without introducing the following extract:—

"Among the remedial measures for these various morbid conditions of the digestive organs, and the sympathetic diseases which originate in them, change of climate is one of the most efficient. And when the patient cannot avail himself of a more complete change of climate, he may derive much benefit from a temporary residence in some of the milder situations in our own island." *

Chronic Bronchitis.—Under this head I would include all chronic affections of the air-passages, whether the bronchiæ alone, or the trachea or larynx also, may be implicated. Chronic bronchitis, or winter cough, is a disease to which elderly persons are more particularly liable, although it may also affect those in early life, but in such cases it is generally the sequel of other diseases, such as measles, hooping-cough, or some cutaneous eruptions:

* Sir James Clark on the Influence of Climate, p. 22.

this disease is also the bane of those artisans whose employments compel them to labour in an atmosphere loaded with particles of extraneous matter; amongst cutlers it is generally called grinders' asthma. Sir Arnold Knight, M.D., of Sheffield, in the "North of England Medical Journal," states that almost all fork-grinders who use a dry grind-stone, die at the age of twenty-eight or thirty-two; that out of more than eighty who followed this employment, there was not a single individual thirty-six years of age. Chronic bronchitis, when occurring in elderly persons, is generally the result of acute disease, and manifests itself by habitual cough and expectoration; this is more severe during the winter and spring months, hence its popular name. When the disease is more severe there is considerable difficulty of breathing, with occasional pain in the chest, accompanied with febrile symptoms; digestion is generally impaired; expectoration is more copious, and sometimes streaked with blood. The treatment must vary according to the symptoms. While blisters, counter-irritants, and expectorants, are duly employed, attention must also be paid to the functions of the organs of digestion. All vicissitudes of temperature must be avoided: on this last topic I

will quote the words of one of the most able physicians of the present day: "It is scarcely necessary to insist on the importance of avoiding extremes, and sudden transitions of temperature, improper clothing, and all those circumstances which are in themselves frequent exciting causes of the disease; when reapplied they must necessarily prolong it; and not a few instances are met with where, owing to the nature of our climate, it is impossible sufficiently to avoid them. In these cases, in spite of the most careful administration of remedies, the disease persists, but a perfect cure is effected by simple removal to a more genial climate."*

During my residence at Hastings I have so constantly verified this fact, that it is needless to dwell upon it. Patients come down to Hastings scarcely able to breathe, the cough incessant, the digestive organs impaired, either from sympathy with the bronchial mucous membrane, or injured by the constant use of sedative or demulient remedies; a change to a climate like Hastings for a short time, with appropriate remedies, is sufficient to restore such persons to a state of health which they have not known for months, perhaps years.

* Dr. Williams on Bronchitis, Cyclop. of Prac. Med.

ASTHMA.—This disease has its origin from so many and various causes, that each individual case requires the most careful consideration of the physician before any remedy is recommended. Should, for instance, the asthma depend upon disease of the heart, or any vital organ, change of climate could only be useful in as far as it benefited the original malady; but, in the purely nervous spasmodic asthma, much may be expected from this measure. To those who experience or witness an attack of this disease for the first time, it appears one of the most formidable maladies to which the human body is liable, and yet scarcely an instance of death has been known to occur during the paroxysm, however severe it may have been. The asthmatic patient has usually some premonitory warnings previous to an attack: these generally consist of symptoms of indigestion, heart-burn, distension of the stomach, pain over the eyes, &c. The paroxysm most commonly occurs in the night: the patient experiences a constriction over the chest, which impedes respiration; he starts up in bed, flies to the window for air; he breathes only by gasps, with a wheezing sound; he has a tendency to cough and inability to speak. This state continues for some time, when a remis-

sion ensues, and the patient gradually and slowly recovers from the attack. The asthmatic patient is generally a perfect barometer, indicating the approach of those winds, and those circumstances, which usually excite a paroxysm with as much certainty as the mercury rises and falls. Generally speaking, alleviation will be experienced from a change to those places where the thermometer is little variable, and which are sheltered from the north and east winds; and Hastings is therefore particularly suitable for such patients. Amongst the numerous instances which have come under my own observation of persons receiving benefit from this distressing malady, I may relate the case of a lady from the north of England, who has spent several winters at Hastings, and has experienced the greatest benefit from the change. The last winter which she spent in her own home she was confined to her bed-room for the cold months, but not for a single day during her sojourn at Hastings has she been prevented joining her family, and not for a single week has she been unable to take exercise in the open air. Whenever this patient attempts to stay a little longer in the season than ordinarily, at her own home, she is warned by slight attacks of

her disease what will be her condition if she remains.

Patients who are suffering from dry spasmodic asthma should choose a residence sufficiently sheltered, and yet not too relaxing to the system; and, generally speaking, those parts of the town which are comprised in the second and third divisions in the chapter upon choice of situation, should be selected. While, on the contrary, those affected with humid asthma, where the disease is complicated with chronic bronchitis, must be more careful of the locality they select for a residence, and for such patients the first, or the more sheltered parts of the second division will be found most suitable.

NEURALGIA, OR TIC DOULOUREUX.—The peculiar character of this affection was first pointed out by M. Andre, a surgeon of Versailles, in 1756; but it was first accurately described in this country by Dr. Fothergill, in the fifth volume of the "Medical Observations and Enquiries," as an affection of the nerves of the face, under the title of "dolor cruciens faciei;" but later observations have shown that all parts of the nervous system are liable to this malady. The pain is not constant, but comes on

by paroxysms of longer or shorter duration, and is often excited by the most trifling circumstances. If the face is the part affected, the pain is frequently excited to an extreme degree of violence by the act of speaking, a movement of the body, a slight touch, or even a breath of wind. The disease is usually accompanied with derangement of the digestive organs, and general debility, and has its origin from all those causes which tend to depress the powers of the system, such as mental anxiety, want of rest, frequent exposure to cold, great bodily exertion, a poor and insufficient diet. This malady arises most frequently from disordered functions of the affected nerves, but it is also caused, in many instances, by some inflammatory or organic disease of the nerves themselves, or of that part of the nervous centres from which they derive their origin. By whatever cause the disease may be induced, and whatever may be the remedial measures employed to relieve it, a mild equable climate, well sheltered, and free from excess of moisture, will be of the greatest assistance as an adjunct; very frequently, without this advantage, all other remedies will be found of little service.

Acute Rheumatism.—This disease is not only one of a most painful character, but after it has once been subdued it is apt to recur from very slight causes, and it would be well if the evil were limited to the present sufferings of the patient, but organic change of the valves of the heart are too often the sequel of rheumatic affections. The disturbance from this cause may seem at first but slight, but the evil continues to increase, until at length the hydraulic machine is unable to propel the vital stream with sufficient energy through the system, so that the powers of life begin to droop, and in the end the patient sinks either suddenly, or more gradually from general debility, preceded by dropsy, or great emaciation. A change from a cold and humid climate to one which is dry and sheltered is of great importance to such invalids, and very materially tends to give effect to appropriate remedies, and prevent the recurrence of the disease.

Chronic Rheumatism.—To those who are suffering from this very painful affection, a sheltered situation is of the utmost importance, particularly with the additional advantage of warm sea-bathing. No remedy is so valuable in the treatment of chronic

rheumatism as warm sea-bathing, whether applied generally or topically: in that severe form of the disease which has been called nodosity of the joints it is of the greatest service.

GOUT.—Gout and rheumatism are evidently nearly allied, the structures which are attacked are similar, and the two diseases were formerly considered as one, until their distinctive characters were pointed out by Ballonius in his treatise, "De Rheumatisme et pleuratide Dorsali, 1642." The leading points of difference consist in the particular joints affected, in the progress of the symptoms, and in their exciting cause. The disease may be either acute or chronic. Acute gout is a genuine inflammatory affection, which runs a defined course, and is attended with inflammatory fever. In this disease the smaller joints are affected, in rheumatism the larger. The chronic form, or irregular gout, as it is called, is attended with no inflammatory fever. In another form, which is called retrocedent gout, the disease attacks some internal organ. After acute gout has subsisted for some time, an earthy matter is deposited upon the affected joints, which ultimately obstructs their motions. This substance

was analysed by Dr. Wollaston, and found to consist of the urate of soda. As an excess of the combinations of uric acid are very generally found in the urine of gouty patients, it has been supposed, by some physicians of eminence, that gout is caused by an excess of uric acid, or its compounds, in the system, or by an inability of the kidneys to expel these combinations; or that, at least, this excess bears some relation to the presence of gout in the system. Dr. Gairdner appears to think that the more probable cause of gout is a deficient elimination of carbon from the system. Although gout is often an hereditary disease, it is more generally dependent upon the state of the organs of digestion, and is very commonly a disease of repletion. Attention to the digestive organs, therefore, claims our first care, and the climate in which the patient resides will have a considerable influence on the curative treatment, whatever be the cause of the malady. Pure air and opportunities for sufficient exercise will be important conditions of the cure. In this case a residence at Hastings will be highly suitable, sea air being one of the best means of improving the tone of the digestive organs. Sir Charles Scudamore observes:—"When residence is a

matter of convenient choice, a gravelly soil on a middling level, and protected from the north and east winds, should be selected for the purpose."* Amongst the causes which most predispose to gout, the same author observes, that "variable climates certainly operate the most in predisposing the body to gout, and locality of situation has a powerful influence, so that the gouty person sometimes finds himself compelled wholly to change his place of residence for one which is dry and protected."

"Changeable weather, and especially in spring and autumn, when cold winds prevail, with frequent wet, acts very strongly on gouty diathesis; and causes almost habitual achings and increased stiffness in the joints which have been affected, also predisposing the system to a paroxysm. The regular functions of the skin, so important to health, suffer material interruption; and hence the chief explanation of the ill consequences which ensue." †

And Dr. Gairdner says,‡ "I recommend a perfect holiday to all men who have gone through a fit of gout. It should be passed in good bracing air, with

* A Treatise on the Nature of Gout and Rheumatism, p. 599.

† Ibid. p. 78.

‡ On Gout: its History, its Causes, and its Cure, p. 208.

as much exercise as their feeble state will enable them to take, in order that the lungs may be well expanded, the assimilation of the food be perfected, and a pure and well-oxygenated blood be worked into the organic textures and moving structures of the body. During this time of seclusion, it is of much importance that a light but nourishing diet should be used, and that the bowels should be gently acted upon, so as to relieve the system of any remaining oppression. These purposes may be well accomplished during a residence at some of the fashionable watering-places."

Some physicians have considered that gout, or the gouty diathesis, is often a cause of pulmonary consumption; as this subject is of importance, I will quote the opinion of the eminent writer already referred to.*

"I cannot agree with Dr. Prout in considering the tuberculous and arthritic diathesis frequently associated. That they may and do sometimes co-exist I am quite aware; but that this is to the extent to lead to the conclusion that they are vicarious affections, and outward expressions of the same disease, I cannot admit. I believe, on the contrary, that in

* Dr. Wm. Gairdner, on Gout, p. 117.

the great majority of cases of gout, the principal abdominal organs are singularly healthy in structure, and resist for a long time the disorganizing influence of the disease. The reverse of this is true of tuberculous disease, whose insidious beginnings are little felt in disorders of the system. I have ever observed the gouty to have a singular immunity from other constitutional diseases (such as tubercle, cancer, and scrofula), and to such a degree as to justify the vulgar observation, that the gout prevents them. We have not frequent opportunities of investigating the condition of the great organs of the body in the beginning of gout, but I have been struck with their singularly healthy appearance, even at rather advanced periods of the disease."

Scrofula, and Diseases of Children.—Although the peculiar indications of scrofulous affections manifest themselves at every period of life, they more particularly commence in childhood and youth. No original temperament or complexion confers complete immunity from this disease, although certain peculiarities in these respects more decidedly point out the scrofulous diathesis; these indications are more fully treated of in the chapter on Tuber-

cular Consumption. In whatever manner scrofula manifests itself, and whatever may be the age of its victims, a dry and sheltered climate, sea air, with warm and cold sea-bathing, with a simple, nutritious diet, offer the best means of improving the general health, and, by this only rational plan of treatment, curing the disease. This is more especially the case in early youth, and, indeed, in all the various diseases of children; and young persons, particularly when those diseases assume a chronic character, the best remedy is undoubtedly a change of air, and especially a visit to the sea-side.

"Children profit by change of air with surprising rapidity; and there are few cases of deranged health at an early age in which it does not merit the first rank in the list of remedies. Delicate females also benefit greatly; indeed, in proportion to the natural susceptibility of the individual is the beneficial influence of a judicious change of air evinced. It is to the young and delicate the best and often the only efficient tonic; and we have daily occasion to regret the straitened circumstances which keep many such patients vacillating in a feeble state, between health and disease, in the confined air of the city, or in some unhealthy residence in the country,

when they might be restored to health and vigour by a temporary change to a purer air."*

Diseases of the Skin.—In the treatment of these diseases it is especially requisite that no check be given to its natural secretions. Many of these affections may justly be attributed to suppressed perspirations, and many others are immediately relieved when this important function of the skin is restored after it has been for a time deficient. For all such diseases the soft and equable climate of Hastings is particularly suitable, and in a greater or less degree, generally affords relief; sea air appears to exert a most beneficial influence, independent of the excellent opportunities afforded for warm and cold sea-bathing, and exercise in the open air.

Concluding Remarks.—I cannot conclude this chapter without offering a few remarks upon the opinion of a justly-esteemed medical writer, from whose valuable work I make the following extract:—

"Judging from my own experience, I should say that the climate of Hastings is unfavourable in nervous complaints, more especially in nervous

* Sir James Clark on Climate, p. 107.

headaches, connected with, or entirely dependent upon an irritable condition of the digestive organs, and also in cases where a disposition to apoplexy or epilepsy has been manifested. But it will be understood from what has been already stated respecting the topographical relations of Hastings, that this effect of its climate is chiefly experienced in the lower and more confined parts: nor is such an effect peculiar to this place; it is common, I believe, to all places similarly situated. The class of persons alluded to, if induced to reside for any length of time at Hastings, should avoid the more confined situations below the cliff, and rather seek such quarters as are more open and elevated, yet in some degree protected from the north and east winds."*

In the above observations this judicious writer has displayed his usual penetration, and the statistics of disease will support his opinion; for, without doubt, nervous complaints are very common amongst those inhabitants who reside in the confined parts of the town. In many cases which came under my notice as physician to the dispensary, such diseases had been increased by the situation; in female servants, for instance, who had come from the country to reside

* Sir James Clark on Climate, p. 127.

with families in these particular parts of the town, and who have been already disposed to hysteria and some other nervous affections,—it must, however, be remembered that this class of persons are very much confined to the house, and therefore more under the influence of the peculiar locality in which they reside than others who are differently circumstanced. Besides, the variety of situation that presents itself for a choice of a residence at Hastings, will always render it unnecessary for such patients to choose a part of the town which would be injurious, when, by a judicious selection, they may obtain one which is highly conducive to their recovery.

CHAPTER VI.

CHOICE OF SITUATION AT HASTINGS, VENTILATION, ETC.

Directions for the Choice of a Residence.—Ventilation.—Dr. Combe's Practical Lecture.—Ventilation in Churches.—Dr. Franklin.—Injurious Effects of Bed Curtains.—Injury to Health from want of Ventilation.

THE invalid who seeks the alleviation of disease by change of climate, must always bear in mind that this change should not be considered as a remedy in itself, but rather as placing the body in a situation where the action of other remedial measures can be exercised with greater advantage. In what I shall therefore say on the choice of a situation at Hastings, I would address those who resort to it for its climate, under the advice of physicians, who, residing at a distance, only know the place generally, not the many peculiarities by which it is adapted to various diseases, and various states of the same disease,—and those who may visit it with a pro-

phylactic view, either to improve a constitution hereditarily weak, or debilitated by disease, climate, mental or bodily exercise; to such visitors, or even to those who are necessarily occupied in the metropolis, and who steal an annual visit to lay in, as it were, a stock of health, sufficient for a year's consumption, it is of no trifling advantage to be judiciously advised as to the best means of attaining their aim. Nor is the choice of a residence of trifling import to the invalid who resorts to Hastings for climate; for many have had reason to lament, when too late, an injudicious selection in this respect.

With a view, then, to assist the judgment of patients and their advisers in this important matter, the choice of a residence, I shall subjoin a brief classification of the different sites in the town, which I believe will be found sufficiently accurate for practical purposes:—

First Division.

High-street, All Saints'-street, George-street, Cavendish-place, Croft, Parade, Pelham-place and Crescent, Breed's-place, Beach Cottages, Undercliff.	Very sheltered, and well suited to the most delicate pulmonary invalids during the winter and spring.

SECOND DIVISION.

Southern range of buildings facing the sea, from the Priory to the west end of St. Leonard's, sheltered by the cliff. Wellington-square, York-buildings, Castle-street, and Caroline-place.	Sheltered, well adapted to those pulmonary invalids who can take exercise in the open air, those suffering from dyspepsia, chronic rheumatism, neuralgia, for both winter and summer.

THIRD DIVISION.

Castle-hill. Parts of the Southern range facing the sea, but not sheltered by the cliff. Maze-hill, and parts of St. Leonard's not of the Southern range.	More bracing, and well adapted for that class of invalids whose systems require tone: suitable for both winter and summer.

FOURTH DIVISION.

St. Mary's-terrace, High Wickham, West-hill, Hastings, and West-hill, St. Leonard's, and all parts at an altitude of 100 feet above the level of the sea.	Very bracing, suitable for those who require a very bracing and tonic plan of treatment, and well adapted as a summer residence for even the most delicate, and to such patients a change to these parts when the summer sets in, will give tone and vigour to the system.

The First Division is very suitable to persons suffering from the more advanced stages of pulmonary consumption, during the winter months, as these parts of the town are so hemmed in by the surrounding hills, that sudden squalls, or variations of the wind, produce less change upon the atmos-

phere; besides which, the mean of the thermometer is higher, and its range less during the winter and spring months, than in the other parts of the town; and as many of the buildings in this division stand east and west, they are not so sultry during the summer as those which, having a southern aspect, are exposed to the glare of the sun during the whole day.

But, if what has been previously pointed out is borne in mind, that the suitability of Hastings as a residence for pulmonary invalids, is chiefly owing to the character of its soil, the height of the hills behind it, &c., &c.,—if it is also taken into consideration that tubercular consumption is as much a disease of the system generally, as of the lungs in particular, I think it must be conceded that there are advantages belonging to some of the other divisions, which may more than counterbalance those of the greater shelter and higher mean temperature by which the first division is distinguished. One of these is so obvious that it scarcely requires to be named,—the full benefit of the sun during the winter, where the buildings have a southern aspect: but the great advantage is in the excellent opportunities for exercise which the Parade, &c., of

Hastings, and the Esplanades and Colonades at St. Leonard's afford.

Those patients who can bear a more bracing air, and a tonic plan of treatment, will do well to choose a residence in those parts of the town which are in the Third Division; and even the more delicate invalids, whose cases require the most sheltered situation in the winter months, will receive great advantage from a change to the more bracing air of the third and fourth divisions during the summer months. Indeed, at this season of the year too great care cannot be exercised in the choice of a situation for delicate invalids. Too generally, individuals of this class, particularly if they come from the inland counties, are apt to choose a situation close by the sea-side; and, in order to be sufficiently near, they will often put up with small and inconvenient bed-rooms in a house built in the slightest manner, of wood, frequently covered over with a coating of glazed black tiles,—a system manifestly unscientific and absurd, unless the object were to absorb more readily every particle of heat; for who has not felt the difference between a black and a light-coloured dress in a hot summer's day? Yet, persons who are accustomed to large, airy houses at home, often even

suffering from great languor and debility, and who arrive at Hastings, perhaps, in the middle of July, choose a lodging in such a situation as exposes them to a stifling heat, resembling that of a tropical climate; and yet such patients wonder they have not been more invigorated by the sea-breezes; they go home often more languid and weak than they came, and are surprised that Hastings should ever have been considered a suitable place for invalids. A young medical student, who came under my own observation during the summer of 1840, was an instance among many others I could name. He had placed himself exactly in the circumstances above named. His case was already hopeless, but he sank with unusual rapidity. Such situations may not, however, be injurious to the stronger invalids even during the summer season, and many of the circumstances which are against their being adopted by the debilitated during this season, render them peculiarly eligible for the winter.

The apartments in a residence for invalids should be large, airy, and light. During the summer, indeed, when invalids are expected to be much in the open air, the size of the sitting-room may be of less consequence; but the bed-rooms, at all seasons,

should be of this description, and every room should at all times be kept well ventilated. More languor, oppression, and debility, arise from want of attention to this point than is generally supposed. Such, indeed, is the great importance of proper ventilation, that a modern French physician, of some eminence, has declared it to be his opinion that scrofula arises from this neglect alone.

"Personal experience, reading, reflection on a great number of facts, and the analysis of many observations, have impressed me with the deep conviction, that there exists one principle of scrofulous disease, a cause which predominates over all others, and without which, perhaps, the disease would never, or at least very rarely, develope itself. The causes consist in particular conditions of the atmosphere in which the individual resides. However ill-chosen or unsubstantial his food may be,—however much cleanliness may be neglected,—whatever be the nature of his clothing, and its adaptation to the temperature,—whatever the climate in which he lives, the exercise he takes, or the duration of his sleeping and waking,—if the house in which he dwells be placed in a situation to which the fresh air and the sun's rays have free and direct access, and

the house itself be sufficiently airy, light, and well-proportioned to the number of its inmates, scrofulous disease will never make its appearance. On the contrary, however well-chosen and nutritious the food,—however minute the attention paid to cleanliness,—with whatever care the clothing be adapted to the temperature, or the duration of exercise, sleep, or waking be regulated,—if the houses are so placed that the sun's rays cannot reach them, or the fresh air cannot be renewed without difficulty; if, in short, they are small, low, dark, and badly aired, scrofulous disease will inevitably supervene."*

Let, therefore, the reader always remember, that moderate cold is far less injurious than an atmosphere rendered noxious by breathing, and by those emanations constantly exhaling from the surface of the body. "Who has not, during the night," says the ingenious Dr. Franklin, "experienced an unaccountable restlessness, which acts as a complete preventive to sleep? let such an one jump out of bed, turn down the bed-clothes, and walk about his room for a few minutes; let him again return to his bed, and he will immediately fall into a quiet and healthy sleep." What is the cause of this rest-

* Baudelocque, Mémoires sur les Scrofules.

lessness, but the irritation produced upon the skin by the exhalations from the body being confined by the bed-clothes? How much more injurious must these same exhalations be, when applied to the blood itself through the medium of the lungs! Dr. Combe, in his visit to the United States, was in the habit of lecturing for two or three hours at a time to crowded audiences in badly-ventilated rooms; in the middle of his lectures he would make a pause, request the ladies to put on their shawls and bonnets, and the gentlemen their hats and cloaks; he would then order all the windows of the apartment to be opened for ten minutes, during which period the audience entered into conversation among themselves; at length, the windows were shut, the ladies and gentlemen unbonneted and uncloaked, and he would resume his lecture to an audience refreshed and invigorated in body and mind. All acknowledge Dr. Combe's literary talents and love for science, and here he exhibited an admirable instance of practical philosophy: he well knew that a number of persons crowded together in an unventilated apartment would render the air impure; that, in those breathing this impure air, the blood could not, in passing through the lungs, receive so perfectly

that vitality which it ought to acquire; and that, consequently, when the vital stream was circulated through the brain, this latter organ would soon experience the want of its life-giving energy; hence, languor, weariness, and inattention, would have taken possession of the audience. And here I cannot but remark, that it is much to be regretted that the ventilation of our churches and chapels is so defective and inconvenient, large congregations being often shut up for a long period in an atmosphere quite as oppressive, doubtless, as that in which Dr. Combe lectured; or else exposed to cold draughts of air rushing in from the open doors on the delicate persons seated near them. Invalids are, of all other persons, naturally most anxious to avail themselves of the public ordinances of religion, and it is painful to a medical man to be compelled to forbid them this gratification, or allow it them to their injury.

Nor should less care be exercised by the invalid with regard to his bed: a soft, elastic, springy hair mattrass is generally better for a person in delicate health, than a feather-bed, and particularly during the summer months. A soft bed closes round the person, and, besides confining to the surface of the

body the noxious exhalations from the skin, it is very apt to excite those nocturnal perspirations so wasting and injurious to the patient.

The drapery of the bed has also an influence on the health of its occupier. What can be worse than curtains *comfortably drawn,* so as scarcely to admit a particle of fresh air, and thus confining the unfortunate sufferer to a prison a few feet square. "We are more humane," observes Dr. Combe, "towards the lower animals than towards our own species, for, notwithstanding all the refinements of civilization, we have not yet aggravated the want of ventilation in the stable or cowhouse, by adding curtains to the individual stalls of the inmates." Nor is this opinion novel; the injurious effect of bed-curtains has long been pointed out; the philosophic Franklin says: "It has been a great mistake to sleep in rooms exactly closed, and in beds surrounded with curtains. No outward air that may come into you is so unwholesome as the unchanged, often-breathed air of a close chamber. As boiling water does not grow hotter by longer boiling, if the particles that receive greater heat can escape, so living bodies do not putrefy, if the particles as fast as they become putrid can be thrown off. Nature expels them by

the pores of the skin and lungs, and in a free, open air they are carried off, but in a close room we receive them again and again, though they become more and more corrupted. Confined air, when saturated with perspirable matter, will not receive more, and that noxious matter must remain in our bodies and occasion diseases." Let not only the invalid, but all persons, bear in mind that a constant supply of fresh and pure air is as necessary to the healthy condition of the blood, and perfect vigour both of mind and body, as ever food is to a healthy state of the digestive organs, and for the proper supply of nourishment to the system; and although Infinite Wisdom has appointed no monitor immediately to give notice to the body that it is breathing a vitiated atmosphere, in the same manner as hunger admonishes of the necessity of taking food, yet its baneful influence is soon seen in the heavy eye, the pale, unhealthy cheek, and the enfeebled frame.

CHAPTER VII.

EXERCISE AND AMUSEMENTS.

Importance of Exercise generally.—Testimonies of eminent Men to its Value.—Exercises suitable to Invalids.—Caution as to Excess.—Remarks of Dr. Marshall Hall.—Open-air Exercise.—Extract from "Dysphonia Clericorum."—Exercise of Respiration.—Remarks of Dr. Holland.—Benefit of uniting Amusement with Exercise.—Archery.—Fencing.—Dancing.—Boating and Fishing.—Study of Natural History.—Children's Games.—Times of taking Exercise.

THERE are few things more conducive to the enjoyment of health than regular exercise; the beneficial effects of which are not confined to the body, they extend also to the mind; so necessary, indeed, is bodily exercise, that without attention to it few have attained to any eminence: and it may be said that the greatest men, both of ancient and modern times,—philosophers, orators, historians, and poets,—owed to active and continued exercise that healthy vigour of the mind which enabled them to influence their age. Socrates, the son of a statuary, spent the first years of his life mallet in hand. Cicero, when

he first appeared in the Forum, was in such delicate health that his friends despaired of his life; but he left Rome and the Forum for a time, travelled in Greece and Asia Minor, and while he improved in all the graces of oratory, he acquired bodily vigour. Peter the Great travelled in several countries of Europe; in England he laboured as a common ship-carpenter, and, while strengthening his body by exercise, he laid up such a store of useful knowledge as enabled him amazingly to improve his dominions. The works of Herodotus, Julius Cæsar, Clarendon, &c., show such vigour as can only be found where there is a "mens sana in corpore sano." Virgil owed great part of his fame to his practical knowledge of agriculture; and who that has felt the thrilling power of the lay of Burns, does not recur with interest to the thought that the poet followed the plough.

I particularly dwell upon this subject, because I feel convinced that a great part of the diseases among literary men, clergymen, and the higher classes of society, arise from sedentary habits. It is, indeed, useless for the invalid, with a mind jaded by hard study, to seek change of air in order to improve his health, if he is to follow the same

sedentary occupations and mental pursuits which have brought him into a state of disease. Mental pursuits in themselves are neither injurious to health nor incompatible with longevity, for of 152 savans, taken at hazard, one half from the Academy of Belles Lettres and the other from that of Sciences, in Paris, it was found that the sum of years lived amongst them was 10,511, or above sixty-nine years for each man. But it is mental labour without corresponding bodily exercise that I consider so detrimental to health; nor am I alone in this opinion. Philosophers, physicians, literary men themselves, bear testimony to the truth of my assertion. The elegant Addison reasons thus:—"As I am a compound of soul and body, I consider myself as obliged to a double scheme of duties, and think I have not fulfilled the business of the day if I do not employ the one in labour and exercise, as well as the other in contemplation." Dr. Cheyne remarks, "that labour and exercise are indispensably necessary to preserve the body any time in due plight: the studious and the contemplative ought to make exercise a part of their religion;" and Dr. James Johnson, when speaking of the diseases of females, says,—"Deficiency of exercise in the open air may

be considered as the parent of one half of female disorders, by multiplying and augmenting the susceptibilities to all external impressions." The pallid complexions, the languid movements, the torpid secretions, the flaccid muscles and disordered functions, including glandular swellings and consumption itself, attest the truth of this assertion.

Dr. Barlow, of Bath, in the article, "Physical Education," "Cyclopædia of Practical Medicine," relates a case highly illustrative of the injurious effects produced by a life of indolence, and the benefit of a change to a life of activity. This case I transcribe:—

"We once attended a young lady for various nervous complaints, who possessed the most exquisite sensibility of frame we ever witnessed. She was brought up with every refinement of education, and the habitual indulgence of every luxury, her parents appearing only to live for the purpose of ministering to her gratifications. Such was her acuteness of sensibility, that, at certain times, the opening or closing of a door was agony; such her helplessness, that oftentimes she could scarcely muster energy enough to raise her hand to her head. In the midst of this her father became a bankrupt,

and soon after died. This family were now obliged to labour for their support, and on this feeble creature devolved much of the care of providing them subsistence. She had talents, and she exerted them. With the assistance of friends she opened a school, which she superintended with unremitting assiduity. Her nervous maladies vanished, and for years she persevered in her altered but more happy course of life. It would have been fortunate if she had commenced this earlier, for the delicacy of constitution created by early mismanagement laid the foundation of phthisis, of which she eventually became a victim."

But it is not only necessary to have exercise, but that exercise should be of such a character as will not only bring the muscles into moderate action, but also interest the mind. Exercises, for instance, with the dumb-bells, jumping the rope, and other similar diversions, are seldom productive of much benefit to the adult; they are deficient in interest, and do not excite a corresponding activity of the mind. They should, therefore, never be adopted by adults to the exclusion of those species of exercise which engage the mind, and at the same time call the limbs into action. Task exercises are pro-

nounced by an amusing author to bear pretty much the same relation to health as the castigations of the penitent do to piety and virtue; and assuredly they never have that salutary effect which employment connected with interesting and pleasurable ideas has, when not extended so as to produce fatigue. On the other hand, the injudiciousness of patients themselves, or of over-zealous friends, will sometimes convert exercise from a salutary agent to a source of mischief. Dr. Marshall Hall has given a needful caution on this head:—*

"This fact should never be forgotten,—patients are injudicious from ignorance, and frequently pass from inertness to fatigue. Both extremes are injudicious; inertness is accompanied by languor; exertion and fatigue induce fever; and this fever may, or may not, subside with its cause; it often runs on for days, weeks, or even months, after its cause has been removed. Hence, principally, the chief forms of acute and slow fevers, which are not specific, varied as they are by age, sex, frame, and constitution."

Exercise of body and a cheerful occupation of the mind are especially necessary and beneficial to

* "Observations in Medicine," Second Series, p. 290.

the invalid, for it is no unusual thing for the sufferer to be betrayed into habitual indolence: this arises both from the languor produced by disease, and from his being severed from all his ordinary occupations. This feeling ought to be carefully guarded against; inactivity of body will often counteract all remedial measures, and this is particularly the case in incipient tubercular disease.

If it be asked, what are the exercises suitable to the condition of invalids?—these, of course, must depend upon the strength of each individual; walking, if the strength will permit, or riding on horseback; this latter is of great advantage to the invalid, and Sydenham used to say that horse exercise was as certain a remedy for consumption as Peruvian bark was for an ague. To those who cannot bear those active exercises one less fatiguing must be resorted to, such as a chair or carriage, and when the invalid cannot even take this, friction may be used to great advantage; if the operation is well and frequently performed it will answer the purposes of exercise. During the winter months, and particularly when the wind is in the north and north-east, the Parade at Hastings, the Esplanade at St. Leonard's, and all the streets facing the south at

both places, afford warm and completely sheltered promenades, which ought never to be disregarded by the invalid; even in the highest winds the High-street, the Croft, and all parts of the middle of the town of Hastings will be found warm and sheltered, while the respirator, the happy invention of Mr. Jeffery, has rendered it no longer imprudent, even for phthisical patients, to go out at all seasons of the year. While on this subject I may be allowed to quote what I have said in another place,*—"Daily exercise in the open air in all weathers is another great means of rendering the body insensible to cold. Persons should go out comfortably warm, not with cold feet and chilled surfaces, as is sometimes foolishly done, under the notion of not feeling the difference so much. When thus chilled, the body is much less, instead of more, capable of facing the external cold without suffering from it. When the weather is cold or damp, the person should be well wrapped up, and keep moving briskly, not sauntering or standing still, still less sitting down in damp garments or wet shoes. These outer wraps should be taken off as quickly as possible after coming in."

It is scarcely sufficiently attended to by even

* Dysphonia Clericorum, page 113.

medical persons, that the due exercise of the organs of respiration is a great means of keeping those organs in health, and that so far from inducing a liability to consumptive disease, it is in reality an important auxiliary in its cure.

"As respects the modes of exercising the respiration, they should be various, to suit the varying powers and exigencies of the patient. The 'clara lectio' is one recommended from antiquity, the good effects of which are not limited to this object alone. It might be well, indeed, were the practice of distinct recitation, such as implies a certain effort of the organs beyond that of ordinary speech, more generally used in early life and continued as a habit and exercise, by those especially whose chests are weak, and who cannot sustain stronger exertions. Under judicious observations as to posture, articulation, and the avoidance of all excess, such exercises may be rendered as salutary to the organs of respiration as they are agreeable in their influence on the ordinary voice. Even singing may, for the same reasons, be allowed in many of these cases; but within narrower limits, and under more cautious notice to the effects. One or two remarkable cases are known to me, where a constitutional tendency to

asthma, showing itself early in life, has been subdued to a great extent, and without ambiguity as to the effect, by thus tasking the chest in certain regulated efforts, of which recitation formed a part. However obscure the causes of this disorder, I doubt not that more might be done in prevention of its attacks, by methods thus applied and sedulously continued. The great difficulty in making such means of avail, is that of obtaining due persistence in their use.

"Of actual muscular exercises directed to this function, that of full and repeated inspiration in the free air is perhaps one of the best. The exercises which open the chest, as it is termed, are salutary, provided they are not such in amount as to hurry the circulation, oppress the breathing, or occasion too large and sudden expenditure of muscular power. These precautions do not always receive the notice they deserve in relation to exercises of the chest, and especially in the case of those of feeble habit and disposed to pulmonary disease. If the exertion be such in kind or degree as to quicken materially the action of the heart, and hurry the respiration, no good is obtained, and much evil may be incurred. These functions are the best, as well as most ready tests we can apply, to regulate what

may expediently be done. Altered they are in degree even on the slightest exertion; but they ought not to be so to such extent as to prove distressing to the sensations of the patient at the time, or to leave the feeling of languor behind."*

The breathing, therefore, may best be exercised in these cases by full inspiration when the body is otherwise at rest, or in slight and easy movement. The lungs will thus be more completely filled than by hurried respiration, and without any evil to countervail the good. It is from this cause, chiefly, that exercises on horseback are, for the most part, more beneficial to persons having weak chests than those on foot, in which greater muscular exertion is required, and where the diaphragm particularly is brought into more hurried action. But there are cases where neither mode of exercise is practicable, yet where the gentle exercise of inspiration by voluntary effort, so as to bring more air into the

* This is particularly to be guarded against in those gymnastic exercises which have had their periods of fashion, as well as other less commendable remedies; and have often been carried to injurious excess, both in this point, and in the overstrain given to the several parts concerned in motion. Rightly applied and limited they have great value in various ways for the maintenance of health, and the restoration of parts enfeebled or altered by disease.

lungs than is done by the common act of breathing, is advantageous, even to those who are deeply under the influence of pulmonary disease.*

It is worthy of remark, that rapid motion through the air, on horseback or in an open carriage, is often felt as more beneficial to those in ordinary health than a slower rate of movement. It may be that the air thereby gets more thoroughly into all the bronchial cells, removes what has been stagnant there, and produces more rapid and complete arterialization of the blood. This is obviously the same case as that of moving against a wind, which is generally felt to be invigorating in its effects where the wind is not so strong as to produce much muscular toil in facing it. Other animals evidently share with man in the bodily feeling thus produced.†

* A caution regarding exercise in such habits may be given here, which I do not recollect to have seen mentioned, though founded on a remarkable fact. This is, the increased difficulty of breathing for a time on stopping suddenly from any exercise by which the respiration has been much hurried. Without entering into the causes, it is enough to mention this circumstance, as suggesting the precaution of making the change more gradual, when a state of breathing has been incurred which in these cases ought especially to be avoided.

† A coachman will say that his horses do not breathe so well, that they sooner become faint, with the wind blowing behind them, though the positive draught be less. Something is due here to the

"There is a distinct difference of sensation in the opposite case of moving together with the wind, and at the same or quicker rate than its motion; and I have even known instances where a certain degree of faintness appeared to be thus produced, obviated speedily by changing the direction of progress."

"It is not improbable that these effects depend in great part on the different amount of change effected by the air upon the blood. Attention has scarcely enough been given to the rapidity with which such changes often take place; though experiment and observation alike show how sudden, as well as singular, is their influence upon all parts of the frame."

"Everything which tends to give full ingress of air into the lungs contributes to this effect, which may best be described by saying that the power of vitality is augmented throughout the whole being."*

The invalid will receive extra benefit from some mental recreation being combined with exercise; and during the summer months the archery grounds offer a pleasing and healthy amusement, highly

heat from exercise not being so freely carried away; but this will not explain the whole of the effect observed."

* Dr. Holland's "Medical Notes and Reflections," page 269.

advantageous to those who have a narrow and contracted chest. The revival of this art, which was once England's glory, is a pleasing circumstance of the present day. There was a time when one of England's bishops, and one who sealed his faith with his blood, did not think it beneath the dignity of his office to enforce its practice from the pulpit. In a sermon of Bishop Latimer, he says,—"Men of England, in times past, when they would exercise themselves, (for we must needs have some recreation,) were wont to go abroad in the fields for shooting: it is a gift of God which he hath given us to excel all nations withal. In my time my poor father was diligent to teach me to shoot, as to learn any other thing, and so I think other men did their children; he taught me how to draw, how to lay my body to the bow, and not to draw with strength of the body. I had my bows brought me according to my age and strength; as I increased in these, so my bows were made bigger and bigger, for men shall never shoot well unless they be brought up to it. It is a goodly art, a wholesome kind of exercise, and much commended in physic."

Fencing is also a good exercise for boys, if not carried beyond moderation; so also is the game

called "Les Graces," for both sexes; this last game is admirably calculated to bring the muscles of respiration into healthy action, and that without great fatigue, while it is usually enjoyed at a proper time of the day.

Dancing also will be found good exercise, if the strength will bear it, and it can be enjoyed in well-ventilated apartments, at proper hours. But the fashionable ball-room is no place for even the delicate, much less for the invalid.

Boating and fishing are also good amusements in warm weather, and are highly conducive to the improvement of health.

One of the most obvious and interesting means of combining bodily with mental exercise, lies open to those who take an interest in natural history. None but the naturalist can fully appreciate the enjoyment there is in his pursuit, or the tranquillizing effect it has upon the mind. It is said that naturalists seldom become insane; and perhaps there is something in the habitual contemplation of the actual, and in the tracing of cause and effect, that restrains the mind from becoming unhinged by trains of false reasoning, and mental derangement is perverted reasoning.

It is true, that individuals of lofty mind have sometimes looked with indifference and contempt on the labours of the naturalist, deeming him occupied with puerile and trifling objects; but they forget that, by a close observation of these apparent trifles, large additions have been made to the happiness of the human race. Many a treaty of peace, many a battle, has had little effect upon the general happiness of private individuals; but the discovery of a new plant, a new mineral, has relieved the suffering or added to the comforts of thousands. Thus, while the names of statesmen who have extended the territory of their nation, or of warriors who had ravaged the territories of others, are lauded to the skies, the discoverer of quinquinna, the cultivator of coffee, should not be forgotten.

But my present object is not so much to extol the study of natural history in a general point of view, as to impress upon my readers its desirableness as a pursuit when health fails, and the common every-day engagements of life are broken in upon. I do this both in my capacity as a physician and from my experience as an invalid. In my professional capacity I have frequently been a witness to the miserable state of mind of those patients, who, having been

actively engaged in the business of life, are suddenly laid aside from all their customary employments, while they have no taste for anything else. The disease under which they may be labouring, often produces not a tenth part of the discomfort and unhappiness, consequent on the direful complaint of having nothing to do. Reading often wearies head, eyes, and mind alike; besides, it is perhaps necessary to be much in the open air, and how melancholy is it to ramble up and down without an object! On such patients I would urge the cultivation of a taste for natural history, and just as much pursuit of it as their circumstances will admit. Perhaps the invalid may have to resort for health to the sea-coast, and there abide for a considerable time. And here he will peculiarly need the solace of such pursuits as we are recommending. The majestic grandeur of ocean will indeed strike him with wonder and admiration; he will love to wander along the sands, or sit upon the beach and listen to the murmur of the waves; to gaze on the crested billows rolling in, fierce and impetuous like an armed multitude in the storm of battle: but, after a while, he will be tired of being a mere passive spectator, and will long for something to do. It is

now especially that, if he have taste for natural history, that taste will amply repay him.

The sea is a vast magazine of partly unexplored wealth, and there are objects connected with it which will open new fields of interest. Which of us, as a child, has not been gratified with those beautiful productions of the deep, the sea-shells, even though we used them merely as playthings? And when we apply our minds to consider them with more advanced knowledge, we shall see, not merely in the shell, but in the animal which is its inhabitant, abounding proofs of Divine wisdom and goodness. Why has the Creator been so lavish of elegance and beauty in the depths of the ocean? How vain a question! Is not our God a perfect Being? and all his works must therefore be perfect. Beauty is but ideal; some objects may appear to our eyes more wonderful and beauteous than others, but not the faintest line that encompasses a shell or a flower but has been designed by Infinite Wisdom. Look again at those tangled weeds thrown up by the waves, or covering the rocks at low water; there are mines of interest to the diligent inquirer.

Well do I recollect the feelings of pleasure which pervaded my own mind when I first began to

examine these productions. I was then an invalid, and had had my fairest prospects in life blasted by disease; hope, as far as this life was concerned, scarcely lent me her solace, and I took up the subject merely to wile away the languor and ennui with which I was oppressed. I meant not to go far into the study, but merely to get acquainted with their characters and names.

As I proceeded, great was my delight when I became acquainted with the distinctive character of the zoophytes. And when I examined both them and the algæ more minutely, and discovered the wonderful structure and economy of each kind, I can scarcely describe the thrill of wonder and admiration which I experienced. And whilst my mind was withdrawn from vain regrets, and raised in adoration to the God of mercy, my frame was invigorated by the healthful sea-breezes.

As a fellow-sufferer, then, no less than as a medical adviser, I can recommend the study of natural history to those,—and in this world of sickness and sorrow there are many,—whose full vigour of mind or body has been impaired. And let no one think slightingly of any pursuit, which, not put in the place of the higher realities of religion, but used as

an auxiliary to them, has such capabilities of restoring tone to the mind and vigour to the body.

Some of the lighter games also are beneficial to the invalid, if played for recreation only, particularly those in which there is a little bodily exercise combined with the mental occupation. Children, especially, ought to be allowed freely to play and amuse themselves, and this not only when suffering from ill health, but when perfectly well a freedom from irksome restraint should be allowed. The very laughing and crying, hallooing and singing, running and jumping, are only so many means adopted by nature to give strength to the bones and sinews, and tone and vigour to the muscles. It is a maxim which parents ought never to lose sight of, that the first period of life is designed by the Creator for bodily, not mental development; and therefore, whenever the mind is inordinately exercised in childhood, in all probability, either insanity, hypochondriasis, nervous disorders, or an early death will be the consequence.

Before I quit this subject, it is desirable to guard patients against taking a meal immediately after exercise; time ought to be allowed to let the body, in some measure, overcome its fatigue; indeed, very

often, invalids, although they feel very faint, have but little appetite, until they have rested some short period after exercise.

Attention is paid to this circumstance by old soldiers; for after a hard day's march, they always, if they have the opportunity, lie down, and rest themselves before they take refreshment.

Nor ought exercise to be taken immediately after a meal, as it then interferes with the process of digestion: amongst the experiments instituted by the late Mr. Thackrah, of Leeds, upon this subject, two dogs were fed at the same time; one was allowed to remain quiet, and the other was kept in active exercise; at the end of two hours, upon dissection, digestion was nearly finished in the one who had remained quiet, while in the other it had scarcely commenced.

CHAPTER VIII.

CLOTHING, DIET, AND REGIMEN.

Clothing.—Warmer Clothing necessary at the Sea-coast.—Injurious Consequences of Slight Clothing in Children and Young Persons.—Remarks of Dr. Marshall Hall.—Susceptibility of Infants to Cold.—Errors of Female Clothing.—Wet Feet.—Diet—its peculiar Importance in Civilized Life.—Remarks of Dr. Robertson.—Importance of Diet to Invalids.—Constituents of Human Food. Extract from Fownes—Liebig—Simon.—Process of Digestion.—Case of St. Martin.—Magendie's Experiments.—Rules of Diet.—Mental Stimulus.

Closely connected with the subject of exercise is that of clothing.* The adaptation of clothing to temperature in our climate is rather a matter of difficulty, because December and July will occasionally change places; yet the principle should be borne in mind, that clothing should be adapted to the seasons, since it is almost equally injurious to be too warmly as too lightly clad.

An excess of clothing in warm weather heats the body and excites perspiration, the evaporation of

* See my work, "Dysphonia Clericorum," p. 114.

which from the body often gives cold; besides, the under-garments become saturated with moisture, and are as injurious in their contact with the skin as if they were damp from external causes. Excessive perspiration also debilitates the system, in that it is so much loss beyond the natural evaporation from the skin, and thus the body becomes more liable to be injuriously acted upon by the surrounding atmosphere. When the temperature is low, as in winter, autumn, and spring, flannel should be worn next the skin; and patients who are delicate, especially those who have the slightest tendency to scrofula, should both wear their winter clothing later, and resume it earlier in the season, than those who have more tone. To attempt to harden the constitution by improper exposure to cold, that is, without the precautions of sufficient clothing and others here mentioned, is contrary to common sense; and the uncomfortable sensations of which the body cannot but be conscious under such treatment, are tolerably sure indications of the injury which is being received. To feel chilly, cold, and shivering, is generally, if it continues long, to take cold.

Delicate invalids who visit the sea-coast during the summer months, must always bear in mind that

the mean temperature of the air is below that of the interior of the country, they will therefore feel the necessity of warmer clothing. This lower temperature arises from the air becoming considerably cooled in passing over a large body of water, the evaporation being much more abundant there than on the land; and the evaporated fluid thus carrying with it a considerable quantity of caloric, in the form of latent heat. This difference of temperature is found to increase greatly on putting off from the shore, and invalids who go out on aquatic excursions cannot exercise too much caution in meeting the change, by providing themselves with extra garments.

"It is unfortunately the fashion with many ladies of the present time, equally ignorant of physiology and confident in their prejudices, to let their children be exposed with bare neck, arms, and legs, until the skin becomes mottled by a stagnant venous circulation. In such circumstances, tubercles, the seeds of so much malady and the source of so many heart-pangs, are, I am persuaded, frequently developed: experiments on rabbits prove this. So that this cold surface is equally the source of present misery to the little child, and of future sorrow; and it ought to be of self-reproach to the parent.

"Of this treatment scrofula and consumption, in their various forms, are the frequent result.

"In children, especially, the skin should be excited by rubbing, sponging, &c., and protected by a just and general clothing,—light in summer, warm in winter, with flannel next the surface at all times.

"But the mothers of our day too frequently sow the seeds of disease in vanity, to reap the fruit in sorrow. There may be circumstances of health and atmosphere in which exposure may be right enough; but these rarely coincide in infancy and in our climate, or last the whole day."*

Dr. Milne Edwards, in his "Researches," has conclusively shown that one of the most prolific causes of death in infants is exposure to cold; nor need this opinion excite surprise, when it is considered that the skin is abundantly supplied with those minute blood-vessels called capillaries, which ramify in every direction, and from which the perspiration is secreted. When, therefore, the surface is exposed to cold, these vessels are constringed, and this function, in a great measure suspended, whilst the blood

* Dr. Marshall Hall's "Observations in Medicine," Second Series, page 293.

which ought to circulate in them is congested in the internal organs.

Certainly no greater error can be committed than that of exposing young children to cold, slightly clad, with the intention of making them hardy; this practice too often lays the foundation of a debilitated constitution and incurable disease. The dress of young persons should, of course, be regulated according to the season of the year, and ought to be composed of soft and pliable materials, so as not to obstruct the free and easy motion of the limbs; and although it is desirable that the winter clothing should be resumed early, and laid aside late in the spring, yet it is equally important that the clothing should never be warmer than sufficient to keep the body at its proper temperature. The great object, therefore, ought to be to have such clothing as will sufficiently protect the person, and yet not prevent that due exercise which is so conducive to health.

The female sex are most guilty in respect of deficient clothing, and many a young girl has fallen a sacrifice to the foolish vanity of going out of doors in shoes more fitted for the ball-room than for the ground when moist and chill.

"Insufficient clothing not only exposes the wearer

to all the risk of sudden changes of temperature, but it is still more dangerous (because in a degree less marked, and therefore less apt to excite attention till the evil be incurred) in that form which, while it is warm enough to guard the body against extreme cold, is inadequate to preserve the skin at its natural heat. Many young persons, particularly females, and those whose occupations are sedentary, pass days and weeks and months without ever experiencing the pleasing glow and warmth of a healthy skin, and are habitually complaining of chilliness at the surface, cold feet, and other symptoms of deficient cutaneous circulation. Their suffering, unfortunately, does not stop here; for the unequal distribution of the blood oppresses the internal organs, and too often, by insensible degrees, lays the foundation of tubercles in the lungs, and other maladies which show themselves only when arrived at an incurable stage. Young persons of a consumptive habit will generally be found to complain of this increased sensibility to cold, even before they become subject to those slight catarrhal attacks which are so often the precursors, or rather the first stages of, pulmonary consumption."* In the variable climate

* Dr. Combe.

of England it is also absolutely necessary to clothe in such a manner as to avoid that feeling of chilliness which not only prevents the equable circulation of the blood, but produces also an indisposition for exercise; it is therefore advisable for all persons, especially invalids, to wear flannel next the skin during the winter months. To keep the chest well protected with warm clothing is evidently an object of the first importance, to those suffering from pulmonary affections; nor should the same means be disregarded by those who have only a predisposition to those complaints; neither ought less care to be exercised in keeping the feet dry, for wet, damp, or cold feet are the most frequent causes of congestion of blood, and ultimately of active disease in the internal organs of the body. I would here caution the reader against the popular error of supposing that salt water does not give cold. Assuredly the mere getting wet in the feet with salt or fresh water is not sufficient in itself to produce any injurious consequences; it is the continuance of the cold thus produced that constitutes the evil, and this is the same whether the water be salt or fresh; for, so long as exercise is continued so as to prevent the

sensation of cold, no injurious consequences will follow from either.

We now come to another important subject on which a few remarks must be made.

Amongst the surest pioneers of disease, amongst the weapons which arm it most effectually with its power to strike, may fairly be reckoned *inattention to the state of the digestive organs.* The subject of *Diet,* then, is one which cannot be too well understood, especially as it bears upon those classes of society which furnish the great bulk of the invalid visitors of Hastings. It is very certain that the habits and occupations of mankind, in a highly civilized and artificial community, give this subject an importance which in simpler modes of life it never would assume. It is sometimes thought that too much is made of this matter, that people would be all the better for not thinking so much of what they eat and drink, and that medical men are trifling if they attach much importance to it.

The following observations of a judicious writer will furnish an answer to these objections:—

"The more fully the physical conditions of life and health are fulfilled, the less needful must be the regulation of the diet, either as to its quantity or

quality. If a man is to breathe the fresh and unvitiated open air during the greater part of his working-hours,—if he is to labour daily and severely for his subsistence,—if the body is used so much and the mind comparatively little, attention to diet may be of little moment, even if any variety or abundance of appetizing viands were by possibility attainable, which, under such circumstances, would be most unlikely. But if a man is to spend his life very differently, shut up in the closer air of a town, passing the great majority of his hours within doors, and possibly in an apartment where the direct rays of the sun seldom or never enter, and which may be very imperfectly ventilated,—engaged in an occupation that confines him to his chair, or limits his bodily exertion to an occasional and uniform change of position, or to a series of slight muscular movements, and calling comparatively few muscles into exercise,—and if to this be added much wear and tear of mind, whether in thought or anxiety, the question of diet must become of primary importance, even although, notwithstanding any amount of attention to it, the most that can be hoped for in the case may be to diminish the amount and severity of the dyspeptic symptoms, and to

maintain the man's system in a state nearer to that of health than it otherwise could be."*

If attention to diet be important for those who are in a state of comparative health, its importance is greatly increased when that health is already impaired by morbid influences; and assuredly there are few diseases to which the human body is liable in which the stomach does not sympathize. Hence, the success which has attended the practice of eminent men, whose peculiar system has consisted in referring the origin of almost every disease to derangement of the digestion, and who have shaped their treatment accordingly. It matters, indeed, little what remedies are employed, what measures are adopted for the cure of disease, if the state of these organs is passed over with neglect. We should consider it a great absurdity to propose heavy labour to any one whose limbs were paralyzed or emaciated by disease, and yet the stomach is expected to digest properly whatever is put into it, however crude and indigestible it may be; and that although this organ, from long-continued disease, may have lost its tone, or have its lining membrane in a state of subacute inflammation.

* Dr. Robertson on Diet and Regimen, p. 54.

To the invalid, when he first arrives on the coast, it is of especial importance that attention should be paid to diet, as generally the change of scene, the sea breezes, and the improvement of the spirits resulting from the hope of recovery, give for the time a stimulus to the system in which the stomach participates, and this effect may be productive of great ultimate advantage if judiciously improved. It is important, under such circumstances, that the patient should not overload his stomach, by taking above his usual quantity of food, and he should carefully observe that what he does take is nutritious and suitable; by attention to this, the patient will become invigorated, and immediately begin to derive advantage from his change of residence.

Great advances have been made of late years through the researches of Liebig, and other eminent chemists, in our knowledge of the constituents of human food, and greater advances still may be expected.

It would not consist with my plan to give more than a brief and general view of the subject of diet in its chemical, physiological, and pathological relations; and I cannot, therefore, enter on the description of those simple elements of which all

food fitted for man is compounded. Nor need I do more than remind my readers, that it is the office of the vegetable kingdom to convert these simple, inorganic elements into those compounds which are identical with the various constituents of the blood, of which the bodies of man and animals are formed, and by which they are nourished.

"Among the most beautiful results of organic chemistry must certainly be placed those which instruct us in the nature and functions of food. Much yet remains to be done before the subject can be considered at all complete, and some of the most interesting results are yet disputed; but still enough has been effected to shadow out general principles in the highest degree worthy of our attention. The first, most important, and, perhaps, best-established of these principles admits of being laid down in the form of a definite proposition. It is to the following effect:"—

"Those substances only are capable of being employed in the renewal and repair of the body which have the same chemical composition as the body itself, or, which comes to the same thing, as the blood out of which the body is constructed. There are but three proximate organic principles

yet known which come within these terms, those, namely, already described—albumen, fibrine, and caseine; these only have the power of re-producing blood, and these only can afford nourishment and support in the strict sense of the term. It is not meant that these bodies alone are all that can be required for the due maintenance of the vital powers. Certain non-azotized bodies seem to be essential; such as fat, or some substitute for fat, always present in natural food. An animal can no more live on albumen alone than a plant on carbonic acid alone; in fact, there is a very close resemblance between the two cases."*

"These three nitrogenized compounds,—vegetable fibrine, albumen, and caseine, are the true nitrogenized constituents of the food of graminivorous animals, all other nitrogenized compounds occurring in plants are either rejected by animals, as in the case of the characteristic principles of poisonous and medicinal plants, or else they occur in the food in such very small proportion that they cannot possibly contribute to the increase of mass in the animal body. The chemical analysis of these three substances has led to the very interesting result,

* Fowne's Actonian Prize Essay.

that they contain the same organic elements united in the same proportion by weight, and, what is still more remarkable, that they are identical in composition with the chief constituents of blood, animal fibrine and albumen. They all three dissolve in concentrated muriatic acid, with the same deep purple colour; and, even in their physical characters, animal fibrine and albumen are in no respect different from vegetable fibrine and albumen. It is especially to be noticed that, by the phrase identity of composition, we do not here imply mere similarity, but that even in regard to the presence and relative amount of sulphur, phosphorus, and phosphate of lime, no difference can be observed."*

Mulder, a German chemist, has further discovered that albumen, fibrine, and caseine, are nothing but modifications of one compound, to which he has given the name of proteine (from *proteno*, I am first), which may be regarded as the commencement and starting-point of all the tissues; and that proteine, in every respect identical with that which forms the basis of the three aforesaid animal principles, may be obtained from similar elements in the vegetable kingdom.†

* Liebig, Ariun. Chem., pp. 47, 48. † Simon's Chemistry, vol. i.

With respect to the process of digestion itself, thus much appears to be ascertained, that "animal matter contained in the saliva, and separable from it when mixed with alkali, proves to be the solvent and digestive medium of starch, upon which acidulated animal matter has no action; and that either this same animal matter, or some similarly-constituted animal matter, when mixed with the acid secretion of the stomach, proves to be the proper solvent for the azotized articles of food, such as fibrine, gelatine, and albumen, having no power to dissolve or assimilate the non-azotized aliments." *

The changes which really take place during the process of digestion are probably but yet imperfectly understood, and hence, we are unable to detect the reason why substances nearly identical as to chemical composition, should yet be so dissimilar in their powers of nutrition; as, for instance, gum and sugar, fat and alcohol. Hence, it is that there is no *royal road* to skill in dietetics, but judgment must be exercised upon individual cases. General deductions are, however, of great value as an assistance to the judgment; and the interesting case of Alexis St. Martin, reported by Dr. Beaumont, has always

* Dr. Robertson on Diet and Regimen, p. 35.

had much weight as to the more or less rapid solution of different kinds of food. It must, however, be borne in mind, that the fact of food being *dissolved* in the stomach, does not prove that it is *assimilated* to the system.

Alexis St. Martin was a native of Canada, who, by the discharge of a musket, received a wound in the region of the stomach, and by subsequent mortification a large portion of the coverings of the chest and bowels, and a part even of the stomach itself, were destroyed. His strength of constitution enabled him to overcome not only the first shock to his system, but the imperfect healing of the wound; a fistulous opening, however, was left, communicating externally with the stomach, so that the whole of nature's elaborations could be seen by the bystanders, from the time the food was received into the stomach, until it passed from that organ. The case fortunately was under the care of Dr. Beaumont, of the American Army, a man of great tact and intelligence, who, at considerable trouble and expense, instituted a series of experiments and observations upon the function of digestion.

The following Table exhibits the mean time required for the perfect solution of various articles of

diet in St. Martin, when he was in the enjoyment of perfect health :—

	Hours.	Minutes.		Hours.	Minutes.
Rice, boiled.....	1		Beef, with salt only, boiled	2	45
Sago, do.	1	45	Do., with mustard, &c.	3	30
Milk, do.	2		Mutton, roasted	3	15
Do., raw	2	15	Do., broiled.....	3	
Pigs' feet, soused ...	1		Veal, do.	4	
Brains, boiled	1	45	Pork, roasted	5	15
Turkey, roasted	2	30	Soup, beef, vegetables, and bread	4	
Lamb, broiled	2	30			
Chicken, fricassee ...	2	45			
Fowl, broiled or roastd	4		Chicken soup	3	
Eggs, fresh, boiled hard	3	30	Bread, wheaten	3	30
„ „ soft	3		Parsnips, boiled	2	30
Eggs, whipped and raw	1	30	Carrots, do.....	3	15
Oysters, raw	2	55	Potatoes	3	30
Salmon trout, boiled	1	30	Do., baked or roasted	2	30
Flounder, fried	3	30	Cabbages, raw.....	2	30
Beef, good, roasted...	3		Do., boiled	4	31

In the above Table some articles are dissolved in a much shorter time than others; but it is well ascertained that a proper mixture or proportion of animal and vegetable food produces more healthy chyle, and is always more nourishing than an adherence to any one particular kind alone. This fact was first put to the test of experience by Dr. Stark, of Vienna, who instituted a number of experiments upon himself, of which he ultimately became the

victim; and by which he proved, that the most nourishing articles, when unmixed with other food, if they were continued for any length of time, were incapable of sustaining life. The same fact has also been more fully shown by the numerous experiments of Magendie upon the lower animals. A dog fed upon white bread made from pure wheat with water, died at the expiration of fifty days. Rabbits and guinea-pigs, fed only on one substance, such as corn, hay, barley-flour, carrots, cabbage, &c., died with all the appearances of inanition, in generally from ten to fourteen days. An ass fed on boiled rice died in fifteen days, and during the latter part of the time refused the food. Dogs fed exclusively with cheese, or with hard eggs, lived some considerable time; but became extremely weak, and lost their hair. What is singular, animals which have been so fed for some time, and have become much emaciated, continue to get weaker, although a different food is given them, and die about the same time they would have done, had the exclusive diet been continued. The digestive organs appear to be irreparably injured, so that no future treatment can restore them.

It is impossible to give precise rules for diet

suitable to every individual case, much must depend upon particular circumstances. The following directions will be found applicable to those suffering from derangement of the digestive organs and general debility; while, at the same time, they have a particular reference to that class of invalids who already have, or are threatened with, affections of the lungs; as these form the majority of patients who resort to Hastings for the benefit of its climate.

To such individuals it is important that the diet they use should be nourishing, yet easy of digestion; for all such patients, sooner or later, suffer more or less from dyspeptic symptoms; whilst their prospect of restoration to health, depends almost entirely upon their strength being kept up by efficient nourishment. When, therefore, the stomach can bear mutton, game, or poultry, such meats ought always to form a part of the diet. Invalids, on their first arrival at the coast, especially if they come from the inland counties, are very apt to take an undue proportion of fish, from being able to obtain it in great perfection. This ought to be carefully guarded against. "Fish," says Dr. Paris, "is certainly less nutritive than mutton or beef; but the health and vigour of the inhabitants of fishing-towns

evidently prove that it is sufficiently nourishing for all the purposes of active life; but, in order to satisfy the appetite, a larger quantity is requisite; and the appetite returns at shorter intervals than those which occur during a diet of meat. Nor does this species of food produce the same stimulus to the body, the pulse is not strengthened as after a repast of flesh; and that febrile excitement which attends the digestion of the more nutritive viands is not experienced. Hence, fish affords a most valuable article of diet to invalids labouring under particular disorders; for it furnishes a chyle moderately nutritive, but, at the same time, not highly stimulant. From the nature of its texture it does not require a laborious operation of the stomach, although it is sufficiently solid to rescue it from those objections which have been urged against liquid or gelatinous food. From the observations just offered, on the nutritive powers of fish, it must follow, that such a diet is not calculated to restore power to habits *debilitated by disease*, and should never be directed under such circumstances, but from the conviction, that the digestive powers are unable to convert stronger aliment into chyle."*

* Cyclopædia of Practical Medicine, Art. Dietetics.

Vegetables are not so quick of digestion as animal food, and are, therefore, not so well adapted to weak stomachs; besides, when they are not readily digested, they quickly undergo the acetous fermentation, and thus produce flatulence and heartburn. Neither do the digestive organs quickly assimilate soups or broths, besides which, these articles, unless they are made very strong indeed, do not afford sufficient nutriment. When, however, from particular circumstances, chicken, veal, and mutton broths, or beef-tea, are taken by the invalid, they ought to be thickened with bread, barley, or rice, and no other sort of food should be taken at the same time. Fat and oily meats are not only slow of digestion, but when taken by delicate invalids, they load and injure the tone of the stomach. Pastry, rich cakes, and puddings, are also injurious, and should be carefully abstained from, as they contain much fatty and oily matter.

The dyspeptic invalid's diet, should consist of plain well-cooked animal food, in a moderate quantity, without condiments, and with a fair proportion of bread or mealy potato, or, what is better, boiled rice. The different kinds of animal food, as mutton, game, venison, or poultry, may be constantly varied;

but it is desirable that each meal should consist of only one, or at most two, separate dishes, both because such meats being unmixed are more readily digested, and because most invalids, when they have a plurality of dishes, are apt to take a greater quantity than is proper at one particular time. Fluids in large quantity ought not to be taken with a principal meal, as they both dilute the gastric juice and injure the tone of the stomach. One of our most eminent authors thus expresses himself upon this subject:—"We believe that much of the thirst which is made the excuse for drink, both at and after dinner, arises either from a bad habit cultivated by long usage, or from eating too much in quantity, or food of an improper quality. We know several instances of dyspeptics, who never could dine without drink, both at and after eating; but who, on being put on a proper plan of diet, both as to kind and amount, required no drink at all, or not more than a cup of coffee when the repast was finished. We repeat it, then, that thirst, or the desire for more than a very little drink with our principal meal, is, in general, a symptom that there is 'something rotten in the constitution of Denmark.'" *

* Medico-Chirurgical Review, 1827.

Attention must also be paid to the quantity as well as the quality of the diet, since even the most easily digestible articles, when taken in excess by a dyspeptic patient, will produce all the bad effects of the most indigestible. Dr. Cheyne, Mr. Abernethy, and others, have attempted to lay down precise rules as to quantity; but this must not only depend upon the peculiar constitution of each patient, but even the same individual will require more or less, according to the amount of exercise he may take. It was the opinion of Mr. Abernethy, that the dyspeptic might be almost regardless of the quality, if he rigidly observed the necessary restrictions in regard to quantity; but it is assuredly of great importance, that those should pay the strictest attention to the nourishing quality of their diet, who are debilitated by disease of a tuberculous character, as their object is not merely to keep their digestive organs in a healthy condition, but to restore lost vigour, and to acquire increased strength to resist the progress of disease. Nor is this attention to diet less necessary to those who are free from actual disease; but who have received hereditarily, or have acquired a predisposition to tubercular consumption: indeed it forms one of the most powerful

means of resisting the malady, and at length overcoming the tendency to it.

To be truly effectual this attention ought to commence with infancy, and at this age the most proper food is the parent's milk; at least if the parent be strong and healthy; if otherwise, a proper nurse ought to be chosen, during the time of suckling. The diet of the nurse should be light and nutritious, but not too stimulating and exciting. As soon as teething is accomplished the food may be more substantial, but this must be regulated by the strength of the child. "In proportion to the delicacy of the child, the diet will in general require to be mild; while he thrives upon farinaceous food, milk, and light broths, no stronger or more substantial diet need be used during the first two years: when he looks healthy, and grows, and his bowels are regular, (for this is one of the surest indications that the food is suited to the digestive organs,) we have the best proofs that the diet agrees with him. When, on the other hand, the child appears heated or flushed towards evening, drinks greedily, and more than is usual in children of the same age, and when the bowels do not act regularly, we may be assured that there is something wrong in the regimen, or

some derangement in the functions of the digestive organs, which requires immediate attention. There is no greater error in the management of children, than that of giving them animal diet very early. To feed an infant with solid animal food before it has teeth proper for masticating, shows a total disregard to the plain indications of nature in withholding teeth suited to this purpose, until the age at which the system requires solid food. Before that time, milk, farinaceous food, and animal broths afford that kind of sustenance which is at once best suited to the digestive organs and to the nutrition of the system. The method of mincing and pounding meat as a substitute for mastication, may do very well for the toothless octogenarian, whose stomach has been habituated to concentrated nutriment; but the digestive organs of a child are not adapted to the due preparation of such food, and will be disordered by it. When the child has the means of masticating, a little animal food may be allowed; but at first this should be of the lightest quality, and allowed on alternate days only, and even then its effects should be watched; for all changes in the regimen of children should be gradual."

"The observation of the frequent origin of scro-

fulous disease in defective nourishment, has led to the opposite extreme of overfeeding; and children who are disposed to tuberculous disease are too often put upon a regimen which favours the development of the disease which it is intended to prevent. By persevering in the use of an over-stimulating diet the digestive organs become irritated, and the various secretions immediately connected with and necessary to digestion are diminished, especially the biliary secretion; at least the sensible qualities of the bile enable us better to observe its changes. Constipation of the bowels and congestion of the abdominal circulation succeed, followed by the train of consequences which have already been detailed. Children so fed become, moreover, very liable to attacks of fever, and of inflammation, affecting particularly the mucous membranes; and measles and the other diseases incident to childhood are generally severe in their attack." *

The mind exerts great influence on the process of digestion, and children are good examples of this effect, being free from care and anxiety: if their diet has been of a proper kind, and moderate in quantity, they soon resume their amusements, while

* Sir James Clark on Consumption and Scrofula, p. 283.

digestion and nutrition go on uninterruptedly. Cheerful conversation, with a gay and joyous mind, is, doubtless, also very serviceable, even to adults. "Laughter," says Hufeland, "is one of the greatest helps to digestion with which I am acquainted; and the custom prevalent amongst our forefathers,—of exciting it at table by jesters and buffoons, was founded on true medical principles. In a word, endeavour to have cheerful and merry companions at your meals; what nourishment one receives amidst mirth and jollity will certainly produce good and light blood."

CHAPTER IX.

BATHING.

Bathing an important Agent in the Health and Regimen of the Body.—Its almost universal Practice amongst the Ancients.—Ancient Public Baths.—Modern Hydropathic Establishments.—Cold Bath.—Sponge, Shower, and Plunge Bath, with the Contra-indications to their Use.—Douche.—Hip and Foot Baths.—The Warm, Tepid, and Hot Baths—The Warm and Hot Vapour Bath—Where Useful and when Inadmissible.—Dr. Forbes' Opinion on the Vapour Bath.—Mr. Alexander Bain's Views on General Bathing.

In the human economy, no less than in other departments of material nature, it is the wonderful plan of the Divine Artificer, that the same instrument should perform more than one operation; thus, the roots of a tree not only serve to fix and support it firmly in the ground, but are also the organs by which a portion of its nourishment is extracted from the earth and conveyed to the plant; and so also the skin not only serves to cover the body with a soft, pliable, even membrane, at once pleasing to the eye

and agreeable to the touch; but it also constitutes one great medium by which are expelled from the system those substances whose retention would be hurtful. This process is carried on by means of countless tubes traversing the skin, and conveying to the surface those excretions which then escape through minute pores in the form of perspiration. Lavoisier and Seguin calculated that eight grains were exhaled from the skin in a minute, that is, upwards of two pounds in twenty-four hours.

The following account of the vast number of pores which compose the perspiratory system, will give some idea of the importance of this function to the well-being of the human body:—

"To arrive at something like an estimate of the value of the perspiratory system in relation to the rest of the organism, I counted the perspiratory pores on the palm of the hand, and found 3,528 in a square inch. Now, each of these pores being the aperture of a little tube of about a quarter of an inch long, it follows, that in a square inch of skin on the palm of the hand there exists a length of tube equal to 882 inches, or seventy-three and a-half feet. Surely such an amount of drainage as seventy-three feet in every square inch of skin, assuming this to

be the average for the whole body, is something wonderful; and the thought naturally intrudes itself, What if this drainage were obstructed? Could we need a stronger argument for enforcing the necessity of attention to the skin?"*

Whenever, then, the functions of the skin become interrupted, and the secretion intercepted, either through disease, want of proper care, or other causes, the health is deteriorated. Occasionally, indeed, other organs—as, for instance, the kidneys—make an effort to supply the place of the skin, and thus prevent the mischief which would otherwise result. Dr. Golding Bird, in his valuable work on Urinary Deposits, says, speaking of the urine,—"There is another very important function which it performs in common with other secretions, depending upon the power possessed by the kidneys, of temporarily compensating the deficient action of other secreting organs. So long as the function of the skin and the kidney bear a normal relation to each other, all goes on as in health, a limpid secretion from the one and insensible exudation from the other, announce that a just balance obtains between the two functions. But if the energy of the cuta-

* Erasmus Wilson on Healthy Skin, p. 37.

neous function be increased, so that more than a normal amount of fluid escapes from the skin, the kidneys compensate for this great loss by secreting a smaller quantity of fluid, so that the urine becomes concentrated, and its specific gravity is increased; and conversely, the bulk of the urine is often greatly increased when the skin is imperspirable. In this way the balance is for a time preserved, and no greater amount of fluid is drawn from the body than is consistent with health."*

It is, then, obvious that whatever checks the proper action of the skin must be hurtful to health. Either those substances which ought to be removed from the body, are retained in it, to its injury, or they are removed, at the expense of some other organ. Now, the skin, as has been shown, is constantly exhaling a fluid, either as *sensible* or *insensible* perspiration. This fluid deposits its denser particles on the surface of the skin; thus, the pores become choked up and their action obstructed. It is, then, a matter of constant necessity to cleanse the skin from these obnoxious particles, otherwise free secretion is checked, and the body cannot enjoy health. Persons who neglect the proper ablution of

* Page 28.

their bodies, generally feel chilly and unfit for exercise. Some singular and extensive experiments have been made at Paris by Becquerel, in which some of the lower animals were covered over with a composition which completely prevented transpiration through the skin; in a very short time a thermometer applied to various parts of their bodies manifested a considerable reduction of temperature, and death was produced in every individual case in from four to twelve hours.

A similar effect is occasionally produced by some diseases of the skin, which the following case will illustrate. I had under my professional care a gentleman whose body was almost entirely covered with a cutaneous affection (*lepra*); the skin was dry and harsh, and secretion from its surface almost entirely suppressed. This patient was extremely sensitive to cold, and seldom stirred from the fireside; he was listless, inactive, and assured me that it required great effort to move. By persevering in the use of warm sea-bathing and proper medical treatment, in a few months the skin began to perform its functions, when those chilly sensations left him, and his muscular energy and animal spirits returned. Now, precisely the same effect which resulted from this

disease, only to a less extent, is produced by the want of proper ablution of the body, a function which is necessary to health, is diminished or suppressed. To the phthisical invalid this is attended with a double disadvantage; for, if the cutaneous secretions are not properly performed, other organs will be excited to increased action, and such as are in a diseased state, in all probability, more than proportionally stimulated; whilst, at the same time, one of the great objects in the cure of phthisical patients—that of correcting functional derangements of the viscera—will be prevented. Dr. Marshall Hall says:—

"The treatment of the general surface of the body is one of the most important elements of hygiène. In bathing, the skin should be stimulated, and the temperature should be carefully preserved. In general, a coarse towel should be first well used, then the sponge, with cold water, or cold salt and water, should be passed rapidly and energetically over the surface; and, lastly, the towel again, the feet being rubbed until both they and the patient glow with warmth."*

After this general view of the importance of the

* Observations in Medicine, Second Series, p. 292.

cutaneous function, and the interruption to which it is liable from external causes, I proceed to speak rather more in detail, of those methods which are calculated to maintain it, in its due activity.

The bath has ever, in one form or other, been esteemed as a material agent in the regimen of the body, though its estimation, and more especially its general use, has varied with climate and national manners. Amongst the ancients its employment was constant and almost universal. "The Romans surpassed any nation that has ever existed in the magnificence of their public baths. An ancient Therma consisted of four distinct apartments for as many different purposes:—1, Tepidaria; 2, Laconicum; 3, Calidaria; 4, Frigidaria. The first, or Tepidaria, called also Apodyterium, derived its former name from its being filled with tepid air, and the latter from its being the place in which the bathers undressed. The second, or Laconicum, called also Sudatorium, was an apartment filled either with heated air or steam, that is to say, it was, according to different usages, an air-bath, or a vapour-bath. The third, or Calidaria, was a cistern for containing warm water. The fourth, or Frigidaria, was a cistern for cold water. The mode in which the ancients

went through the process of bathing was as follows. First they went into the Tepidaria, where they left their clothes, and proceeded to the Laconicum, and there they were carefully scrubbed with the flour of beans, soda, &c., and then went into the hot bath, where they remained for some time, and coming out of it, they took a plunge into the cold-water bath, and then returned to the Tepidaria, where they underwent the Restorative friction, that is to say, were rubbed with oils or ointments, and sprinkled with fragrant powders, and then they resumed their clothes." *

But amongst the ancients,—at least, amongst the Greeks and Romans,—the bath was employed rather as a luxury of ordinary life than as an agent in medicine.

At the commencement of the eighteenth century Sir John Floyer and Dr. Baynard employed water, both externally and internally, in a manner almost anticipatory of the modern hydropathists; their use of it seems to have been chiefly confined to chronic disease. At a later period Dr. Currie obtained great celebrity by the use of cold water to patients suffering with fever. But the application of water as a

* Paulus Ægineta, vol. i., p. 68. Commentary.

remedial agent has perhaps been practised by Priessnitz and his disciples to a greater extent than has ever been recorded in the annals of hygiène.

The principal methods by which water is applied in hydropathic establishments are the following:—The packing with the wet sheet, the cold plunging bath after sweating, the wet compress, the Sitz-bath, and the Douche; with these external ablutions, is combined the inhibition of water, more or less copiously. The advantages of their system seem to be this,—water taken internally is an evacuant and diluent, and facilitates the elimination of noxious substances from the body. Used externally, it is a ready and powerful method of applying heat, and cold, either singly, or successively, to the surface. The dangers of the system lie in the excessive and indiscriminate employment of these remedies.

The bath may be either cold, tepid, warm, or hot.

Cold Bath.—This may be administered by affusion, or sponging, by the plunging, douche, or shower-bath.

Sponging Bath.—The most common method of ablution of the body is by sponging, but a more complete and rapid manner of effecting this opera-

tion is by wrapping round the person, for a few seconds, a large towel dipped in cold water, and immediately replacing it by a dry,—and better still, a warm one. This produces a much greater glow than the common practice of sponging, during which, part of the wetted surface is exposed to the air and evaporation takes place. The best plan is to use the towel to the back and shoulders whilst the chest and fore-part of the body is being sponged. Friction with a flesh-brush, rough towel, or with the hand, should be resorted to after the body is dried. Where sea-water can be obtained it should be used, but where it cannot, vinegar, or bay-salt, may be added to the water. This use of the sponge and wet towel is found to be one of the best methods of ensuring a healthy condition of the skin, and of fortifying the entire system of those who are suffering from incipient phthisis, or who are disposed to affections of the chest; and it is a practice which I am constantly in the habit of recommending even to the most delicate invalid. The temperature of the water used in the morning ablution must depend upon the season of the year, and the temperament and state of health of the person using it. When persons adopt this plan as a preventive against cold,

and disease, the water should be of the temperature of the air, but if the patient is in delicate health, or has a languid circulation, it may be used not only a little warmer, but even tepid. Sea-water, when it can be obtained, is always preferable to that made artificially saline. At bed-time, too, after the fatigues of the day, to sponge the body with warm water and soap, not omitting gentle friction, is also a practice highly conducive to comfort and health. The refreshing and delightful sensation produced by this practice will afford ample recompense for the trouble.

Shower-bath.—When the patient is stronger the shower-bath may be employed instead of sponging. The shock produced upon the system by the shower-bath is much greater than that of simple sponging or affusion, and is even greater in some respects than that of the cold bath of the same temperature; but the shock may be increased or diminished at pleasure, by increasing or lessening the quantity or temperature of the water, or the height from which it is allowed to fall, or even better by the patient wearing a pointed cap in the form of a sugar-loaf whilst in the bath, so as to prevent the direct fall of water on the head. Frequently individuals can bear the

shower bath, who cannot bear the cold plunge bath, as the latter appears to produce more oppression of the chest, perhaps from the pressure of the water on the surface of the body. To those persons suffering from, or predisposed to, affections of the head, the shower-bath is a valuable remedy; it affords one great advantage, that the feet may be immersed in hot water during the process.

The Cold, or Plunge Bath.—Sea-water is always most preferable to fresh *for the cold bath,* both from its greater density and the stimulating effect it has upon the skin.

Cold sea-bathing is a powerful means of invigorating the system. The practice has prevailed so extensively, and its advantages have been so universally acknowledged, that it is quite unnecessary to enumerate arguments in its favour. Yet it must be borne in mind that the very power which this remedy possesses, renders greater care necessary in its application; some general remarks, therefore, upon this subject, will not be misplaced.

The effect of the cold sea bath is to give tone to the system, and it is well suited to all cases of debility, when there yet remains sufficient vigour of the system, to induce reaction after the patient comes

out of the water. As a general rule, cold sea-bathing is never useful unless a glow is experienced over the entire surface of the body after the immersion. It is always advisable that persons who are very delicate should commence with a tepid bath, repeating it two or three times, and lowering the temperature each time; or such persons, if they have not been in the habit of adopting the practice previously recommended, of sponging the body over every morning, should do so for two or three previous mornings, before they venture into the sea. Those who have followed this excellent plan will require no other preparation whatever.

The best season of the year for sea-bathing is the summer and autumn, although I have known persons bathe in the sea during the whole year, with evident advantage. Assuredly no one ought to commence a course of sea-bathing except in the seasons above named, at which period the temperature of the sea varies from 55° to 70° Fahrenheit. The hour for sea-bathing must, in some measure, depend upon the state of the tide; but, generally speaking, it will be found most serviceable as near the hour of noon as possible; this will be a sufficient time after breakfast, for the invalid to have taken exercise, a

circumstance which, if not carried so far as to produce great languor and excessive perspiration, will be highly serviceable to the patient, as it renders the circulation more vigorous. If there be a little moisture on the skin, it should always be wiped off before going into the bath; this of itself will not be injurious, as long as the surface of the body is not chilled, nor the circulation enfeebled, by over fatigue.

With regard to the length of time during which a person should remain in the bath, this must altogether depend upon the strength of the patient and the temperature of the water; and here it will be proper to observe, that, according to the season of the year, the heat of the weather, and even the place where the invalid bathes, the sea will be of a higher or lower temperature. Dr. Forbes says: "If the shore consists of level sand or shingle, the tide which flows in the afternoon, over a large expanse of surface heated by the noon-day sun during the period of ebb, will often be a good many degrees higher than the morning tide in the same place." *

The following Table shows the temperature of

* Cyclopædia of Practical Medicine, Art. *Bathing.*

the sea at Bognor, on the coast of Sussex, in the summer and autumn of the year 1831 :—

On the 4th of July, at mid-day, the temperature of the atmosphere being 72°, the sea was 69° :—

July	12th at	7 A.M.	atmosphere	63°,	the sea was	66°.
August	3d at	8 P.M.	„	65°,	„	66°.
„	11th at	1 P.M.	„	79°,	„	71°.
Sept.	5th at	8 A.M.	„	64°,	„	71°.
October	29th at	11 A.M.	„	64°,	„	51° *

During the winter and spring months of the year 1842, the following Table will exhibit the difference of temperature between the sea and the atmosphere at Hastings :—

Feb. 28th at 9 A.M.,	temperature of air	45°,	sea	43½°,	wind	W.	
„ „ at 6 P.M.,	„	„	43°	„	44°	„	S.S.W.
March 1st at 8 A.M.,	„	„	47°	„	44°	„	S.S.W.
„ 23d at 12 A.M.,	„	„	50°	„	48°	„	S.S.W.
April 2d at 8 A.M.,	„	„	48°	„	46°	„	
„ 13th at 8 A.M.,	„	„	46°	„	44°	„	
May 1st at 8 A.M.,	„	„	52°	„	58°	„	

Generally, the sun is felt more powerfully at the bathing-place at Hastings than at St. Leonard's, on account of the shelter of, and reflection from, the Castle Cliff. It will, therefore, often be advisable, when the weather is very hot, for the delicate invalid to bathe an hour or two earlier at the former than at the latter place.

* Cyclopædia of Practical Medicine, Art. *Bathing*.

The effect of the cold bath is to give a sudden shock to the system; this cold shock constringes the vessels at the surface of the body, and drives the blood to the internal organs; at the same time, the skin being plentifully supplied with nerves, the nervous system participates, and the effect of this revulsion is a powerful effort made by the heart to restore the circulation; this effort constitutes a reaction, one of the great advantages of cold sea-bathing. Whenever, therefore, there is a tendency to internal congestions of blood, patients should exercise much caution in taking the cold sea bath; and when it is tried, they ought not to immerse themselves suddenly, but gradually, in the water. With regard to the time a patient ought to remain in the bath, this must depend, in a great measure, upon his strength. In a first bath a single immersion only should be tried by a delicate invalid; those who are more vigorous may continue longer in the water, but never so long as materially to lower the animal temperature, and prevent vigorous reaction. Delicate boys frequently injure themselves by a too long continuance in the bath. Moving the body and limbs, as in swimming, is very advantageous. The cold sea bath may be taken every other day,

every day, or even twice a-day, as the patient may be stronger or weaker. When the patient using it finds it to agree, it ought, at least, to be continued one month; indeed, when an invalid is very weak, three months is not too long a period for its employment, in order to secure its full advantage. After the patient leaves the water, the body ought to be quickly dried, and well rubbed with a rather coarse cloth, and the clothes put on without delay; when a gentle walk, if the patient have sufficient strength, will increase the beneficial effect of the bath.

The cold bath ought never to be used by the plethoric, who are liable to apoplexy; by debilitated persons, when the powers of life are not able to produce reaction after its use.

As a general rule, it ought never to be persevered with, when, on leaving the bath, it produces depression of the spirits, prostration of the strength, shivering, coldness of the surface, lividity of the lips and extremities, instead of that cheerfulness of the mind, warmth and redness of the surface, and renewed strength of body, which proper reaction should excite. Nor ought it to be employed by those affected with diseases of the heart, or spitting of blood, indurations of the viscera, or in-

flammations of the mucous membranes; and great caution is required in using it in diseases of the skin. But to the invalid who is threatened with tubercular consumption, or any of the various forms of scrofula in its early stage, it is highly advantageous, and affords one of our most powerful resources.

"As a means of giving tone to the system, and enabling it to bear the vicissitudes of climate, the cold bath forms a valuable remedy. I would strongly recommend that it should be used by children and young persons of a scrofulous constitution during the summer, as being one of the best tonics they can employ. For the bath, sea-water is to be preferred when it can be obtained, and the air of the coast materially contributes to the benefit which is generally experienced from a course of sea-bathing."*

Local Cold Baths.—In various affections of the body it is often desirable to apply cold water immediately to the part affected. This may be done either by immersing the part in water, or by directing a shower of water in greater or less volume upon it. The Douche, or Dash, is used by the

* Sir James Clark on Consumption.

hydropathists as a general bath, but it is seldom employed in regular medical practice, other than locally; as to the head, in cerebral disease,—to the joints, in sprains, or other injuries. A common domestic douche is obtained by holding the part affected, under the stream of water coming from a pump which is actively worked. A cold and hip-bath is useful in certain uterine affections. The cold foot-bath, regularly used, is an excellent preventive of chilblains in delicate children, and in that affection of the feet in which the perspiration assumes an offensive odour.

The Warm, Tepid, and Hot Bath.—These may be either water or vapour. It is not necessary in the latter description of bath that the patient should breathe the vapour; that may be done or not as circumstances indicate. The following is a Table of the comparative heating powers of water and vapour, distinguishing the latter according as it is, or is not breathed:—

	Water.	Vapour.	
		Not breathed.	Breathed.
Tepid Bath	85°— 92°	96°—106°	90°—100°
Warm Bath	92°— 98°	106°—120°	100°—110°
Hot Bath	98°—106°	120°—160°	110°—130°

Warm Water Bath.—By the warm bath is understood water heated from 92° to 98°. The sensation on immersing the body in a bath of this temperature is highly agreeable. It appears both to stimulate the circulation and at the same time to quiet the nervous system; but how these apparently opposite effects are produced has not hitherto been explained. Generally, it relieves any slight spasm or pain that may be present at the time, and produces a mental calm. It increases the temperature and circulation at the surface of the body, and by this means lessens congestion of the internal organs. At the same time a quantity of fluid is absorbed, the body swells considerably, as may be proved by admeasurement, the texture of the skin itself is modified in some measure, and the blood-vessels derive tone and vigour from its operation, while the general circulation is equalised. Possessing, therefore, these advantages, the warm bath may be used, with much benefit, in all cases after great bodily exertion, and many invalids will do well to avail themselves of a warm bath immediately on their arrival at Hastings, to overcome the fatigue of the journey.

It is highly useful to all persons suffering from nervous irritation, neuralgia, cramps, local conges-

tions, and cutaneous diseases, both when the skin is in a dry, harsh, and hot state, and also in the opposite state of clamminess and relaxation ; nor is it less beneficial in many forms of dyspepsia, lumbago, sciatica and gout, particularly when the febrile symptoms have been subdued.

"When proper constitutional treatment has been premised, the use of the warm sea bath after, proves a most successful remedy ; but a greater perseverance may be necessary than the patient is prepared to exert; and I have known it happen, that, although the remedy has agreed, no apparent benefit has begun to appear, until two or three weeks have elapsed; and yet afterwards the best effects have been obtained."*

Those, also, suffering from a predisposition to tubercular disease in any of its forms, will find the warm bath highly useful as a tonic remedy; this is particularly the case in delicate children, where its beneficial effects are more decidedly manifested.

"The powers of warm or tepid bathing in the treatment of scrofulous children are not sufficiently valued. One of the most powerful means of relieving abdominal congestion, improving the func-

* Sir C. Scudamore on Gout.

tions of the skin, and giving tone and vigour to the whole system, is a course of warm sea-bathing, with active friction over the whole surface after each bath; the temperature of the bath towards the termination of the course being gradually reduced until it becomes tepid. The opinion that warm baths generally relax is erroneous; they are, no doubt, debilitating when used by some persons of a weak and relaxed constitution, or when continued too long; but when appropriately employed, they generally give tone. I have already remarked that warm bathing greatly promotes the action of alterative medicines; these two remedies, therefore, when possible, should be combined."*

That debility so frequent in young women who have just attained their growth, will be greatly relieved by warm sea-bathing, accompanied with proper medical treatment, particularly where the strength of the patient will not allow the more active tonic of cold sea-bathing.

The warm bath ought not to be used by persons of a very relaxed state of the body, predisposed to dropsy, those suffering from disease of the heart, spitting of blood, or those threatened with apoplexy.

* Sir James Clark on Consumption and Scrofula.

The warm bath ought never to be taken more frequently than once a-day, and generally once every other day is as often as necessary. About a quarter of an hour or twenty minutes is the proper time for a patient to remain in the bath; and its beneficial effects will be much increased by the use of the flesh-brush during the immersion.

The Tepid Bath, by which is meant a bath of water considerably below the temperature of the body, is similar in its influence, but inferior in power, to the warm bath. When continued for some time, instead of the soothing effects of the warm bath, it produces a sense of chilliness, and, consequently, has a relaxing effect upon the system. It is principally useful to certain individuals who cannot bear the stimulus of the warm bath, and yet have not sufficient power of reaction to bear the cold bath; it is serviceable in certain febrile affections, where it is desired to produce a lowering effect upon the system without weakening the patient. Also in affections of the skin, especially those of an irritating and inflammatory character: this kind of bath is beneficial also in many other cases needless to particularize.

The Hot Bath is, in proportion to the temperature employed, a powerful stimulus to the skin, nervous

and vascular system; the heart's action is greatly increased, the pulse is raised in force and frequency. This is especially felt in the head, and unless care is exercised, giddiness and other cerebral symptoms occur. The heat of the water determines the blood to the surface, which becomes red and swollen. This state is relieved by the breaking out of a general perspiration. If the bath be continued for any length of time, lassitude and exhaustion, torpor and a tendency to sleep come on.

The hot bath is useful in certain cases, where there is congestion of the blood in the internal parts of the body; in extreme exhaustion, with shrivelling and shrinking of the skin; in certain cases of paralysis; in some diseases of the skin, and in the sudden disappearance of certain cutaneous eruptions, such as scarlatina, measles, &c. The same caution, but in a still greater degree, is required in its use as in that of the warm bath.

It should be borne in mind that from the moment the body is immersed in a bath of a certain temperature, that temperature begins to lessen, or in other words, the bath begins to cool. Now, in certain cases it is important to retain the original temperature for a considerable time. This

may be effected by keeping a thermometer in the water, to be closely observed by the attendant, who must gradually add hot water as required. From neglect of this, persons sometimes leave a warm bath rather chilled than warmed. Warm baths, like cold ones, may be applied locally with advantage, as hip and foot baths, &c.

The Hot and Warm Vapour Bath.—The use of hot air or vapour as a bath, has been employed by many nations, both ancient and modern, savage and civilized. Many remains of Roman baths, in which the body was surrounded by aqueous vapour, still exist; amongst others, there is one at Bognor, in Sussex. The following curious account of an Indian hot-air bath was given to Dr. Baynard by the celebrated Quaker, William Penn:—"I once saw an instance of it, with divers more in company; for being upon a discovery of the back part of the country, I called upon an Indian of note, whose name was Tenoughan, the captain-general of the clans of Indians of those parts. I found him ill of a fever, his head and limbs much affected with pain, and at the same time his wife preparing a bagnio for him. The bagnio resembled a large oven, into which he crept by a door on the one side, while she put

several red hot stones in at a small door on the other side thereof, and then fastened the doors as closely from the air as she could. Now, while he was sweating in the bagnio, his wife (for they disdain no service) was, with an axe, cutting her husband a passage into the river, (being the winter of '83,—the great frost, and the ice very thick,) in order to the immersing himself after he should come out of his bath. In less than half an hour he was in so great a sweat that, when he came out, he was as wet as if he had come out of a river, and the reek or steam of his body so thick, that it was hard to discern anybody's face that stood near him. In this condition, stark naked, he ran into the river, which was about twenty paces, and ducked himself twice or thrice therein, and so returned (passing only through his bagnio to mitigate the immediate stroke of the cold) to his own house—perhaps twenty paces further, and wrapping himself in his woollen mantle, lay down at length near a long but gentle fire, in the middle of his wigwam, or house, turning himself several times till he was dry, and then he rose, and fell to getting us our dinner, seeming to be as easy and well in health as at any other time."*

* Dr. Baynard, pp. 103, 104.

The vapour bath may be used either by immersing the body up to the chin and leaving the head free, or by inclosing the head so that the bather breathes the vapour. In the latter case the heat must be lower, as the patient cannot breathe a temperature equal to that which may be used when the head is not inclosed.

The general effect of the vapour bath is similar to the warm water and hot bath, modified, of course, by the greater rarity of the medium in which the patient sits, and which enables him to bear a much higher degree of temperature than in a denser medium; a greater exudation also takes place from the skin, it not being restricted by the pressure of water on the surface.

The vapour bath, where the head is excluded, admits of being medicated with sulphur or other substances. These points of difference mark its superior utility in many cases. Dr. Forbes, in his article on Bathing in the Cyclopædia of Practical Medicine, in speaking of the vapour bath, says—

"We shall refer to that well-known condition of the system which precedes many acute diseases, and which is familiarly known by the name of a chill, because it is usually produced by the application of

cold. This state often exists for several days before the reaction of disease and fever supervenes. It is the usual precursor of acute catarrh, or bronchitis, asthma, pneumonia, rheumatism, diarrhœa, or dysentery, &c.; in a word, of the numerous class of inflammatory diseases which derive their origin from cold. In most of these cases the vapour bath is a very effective remedy, if administered at the proper time and in the proper manner. The most proper time is the earliest possible after the application of the morbific cause; but the remedy may still be applied with benefit, although with much less effect, at any time previously to the actual establishment of the local inflammation. After this has taken place, or is about to take place, the application of the bath will, in most cases, be more injurious than beneficial. In cases of the kind now under consideration, the vapour bath, particularly if the vapour is breathed, appears to possess decided advantages over the common warm water bath. But, although fully convinced of the admirable effects likely to result from this mode of treatment, we cannot consider it as a practice to be had recourse to at the discretion of patients without medical sanction, as, like all powerful remedies, it is capable of doing harm as

well as good. Under proper regulation, we have little doubt that it will, in many cases, effectually check the morbid process, which, if left to nature, must end in formal disease. The temperature in cases of this kind should not be high, the object being to drive to the surface without exciting the circulation; the application of the vapour should be commenced at the lowest degree which is felt to be agreeable, as about 95°, and the temperature should be gradually and slowly raised, and should rarely exceed 106°. The more copious the perspiration that can be excited at a moderate degree of heat, the more likely is the result to prove beneficial."*

The vapour bath is also useful locally, and is frequently recommended in common catarrh and influenza, in the form of steaming the head by holding it over hot water, the vapour being inclosed by a flannel covering over the head.

Pelham Baths, at Hastings, and the corresponding establishment at St. Leonard's, are fitted up with great attention to comfort, and afford every facility for warm, tepid, and hot water baths, also for vapour, cold, plunging, and shower baths.

I cannot better conclude these remarks on

* Vol. i., p. 266.

bathing than in the words of Mr. Alexander Bain, in a lecture at the Edinburgh Philosophical Institution. He says,—"Next to eating and sleeping, the bath may be ranked among the very foremost of the necessaries and supports of life. It is of far higher consequence, and of more general utility, than any kind of manual exercise, gymnastic, or sport. It affects the system more powerfully than these, even in the very points wherein their excellence consists; and it is applicable in a thousand circumstances where they are not. It does not supersede, but it ought to come before, these other practices. A place should be therefore found for the bath among the regular occupations of life; it ought to be a permanent institution, ranking immediately after the prime necessities of our being. Either daily, or several times a-week, should every one repair to it, in some shape or other, either at morn, mid-day, or evening, according to strength and leisure. There certainly does not exist a greater device in the art of living, or a greater instrument for securing a vigorous and buoyant existence. It is one of the most powerful diversions to the current of business occupation; it can suspend for a time the pressure of our pursuits and anxieties,

and return us fresh for the enjoyment of our other delights. To the three varieties of state which our bodies pass daily through—eating, working, sleeping, it would add a fourth, luxurious in itself, and increasing the relish for all the rest. It would contribute to realize the perfect definition of a good animal existence, which is, to have the appetite always fresh for whatever is before us. The health of the mind must be based in the first place on the health of the body; mental occupation and refined enjoyments turn into gall and bitterness if they are not supported by the freshness and vigour of the physical frame."

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